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***Central Eurasia:
Science & Technology Policy***

Science & Technology

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CONTENTS

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ORGANIZATION, PLANNING, COORDINATION

Russia To Continue Participation in Human Genome Project [RADIKAL, No 35 (92), Sep 92]	1
Concept for Privatization of S&T Institutes, Organizations [RADIKAL, No 36 (93), Sep 92]	1
New Academy To Bridge Gap Between Basic, Applied Sciences [B. V. Gusev Interview; RADIKAL, No 34 (91), Sep 92]	7
Federal Science Center Concept Criticized [V. Pokrovskiy; RADIKAL, No 34 (91), Sep 92]	8

BUDGET, FINANCE

Foreign Sales Key To Survival of Russian Science [Mikhail Ostrovsky Interview; MOSCOW NEWS, 25 Oct-1 Nov 92]	10
Gaydar Decree on Funding the Russian Academy of Sciences [MOSKOVSKIYE VESTI, 29 Oct 92]	11
Pokrovskiy Report on Financial Difficulties of RAS [A. Pokrovskiy; PRAVDA, 20 Oct 92]	12
Osipov To Attend Chinese Conference on S&T Financing [NEZAVISIMAYA GAZETA, 22 Oct 92]	13
Russian Academy of Sciences Budget for 1992 Summarized [NEZAVISIMAYA GAZETA, 14 Sep 92] ..	13
Academician Calls for 'Extreme' Budget Measures [D. G. Knorre Interview; POISK, No 37 (175), 5-11 Sep 92]	13
Tax Law Revisions Affecting S&T Institutions [RADIKAL, No 36 (93), Sep 92]	15

FACILITIES, MANPOWER

Novosibirsk Brain Drain Viewed [PRAVDA, 17 Nov 92]	17
French Firms Recruit Russian S&T Personnel [Yu. Kovalenko; IZVESTIYA, 13 Oct 92]	18
New VAK Chairman Advocates 'Strict, Centralized Control' [N. V. Karlov Interview; POISK, No 36 (174), 29 Aug-4 Sep 92]	19
International Institute for Geomechanics and Geological Engineering Formed [GIDROTEKHNIЧЕСКОЕ СТРОИТЕЛЬСТВО, No 7, Jul 92]	21
Ukraine Forms Academy of Computer Sciences, Systems [Presidium, Academy of Computer Sciences, Systems of Ukraine; PRAVDA UKRAINY, 3 Jul 92]	22

AUTOMATION, INFORMATION POLICY

Official Text of Law Protecting Topology of Integrated Microcircuits [ROSSIYSKAYA GAZETA, 21 Oct 92]	25
Law On Scientific Intellectual Property [TURKMENSKAYA ISKRA, 7 Oct 92]	28
Progress in Protecting Intellectual Property Rights Reviewed [S. Protasov; DELOVOY MIR, 3 Oct 92]	33

TECHNOLOGY TRANSFER

Report on FRG's Riesenhuber Trip to Russia, Ukraine [RADIKAL, No 31 (88), Aug 92]	35
Report on Japanese Program To Aid Russian Science [RADIKAL, No 31 (88), Aug 92]	35
Central Aerohydrodynamics Institute to Participate in Hermes Project [RADIKAL, No 31 (88), Aug 92]	36

REGIONAL ISSUES

Uzbek Academy of Sciences President Interviewed on Independence [M. S. Salakhitdinov Interview; PRAVDA VOSTOKA, 27 Aug 92]	37
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MISCELLANEOUS

Frolov on Malaise of Russian Science Establishment [N. Frolov; DELOVOY MIR, 24 Sep 92]	39
'Nauka' Publishers To Merge With Western Company [A. Shustorovich Interview; RADIKAL, No 35 (92), Sep 92]	41

Cosmonaut Comments on Support of Ex-Soviet Electronics Industry [A. Yeliseyev Interview; POISK, No 36 (174), 29 Aug-4 Sep 92]	43
'POISK' Science News Briefs 29 August 1992 [POISK, No 36 (174), 29 Aug-4 Sep 92]	45

CONFERENCES, EXPOSITIONS

Conference on Acquiring Foreign Funds for Russian Science [V. P.; RADIKAL, No 36 (93), Sep 92]	46
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Russia To Continue Participation in Human Genome Project

937A0015A Moscow RADIKAL in Russian No 35 (92),
Sep 92 p 9

[Article by P. D.: "In the Ministry of Science"—first paragraph is RADIKAL introduction]

[Text] On 10 September 1992 the Collegium of the Ministry of Science of Russia discussed the progress of the work on the state scientific and technical program "The Human Genome." A. Bayev, head of the scientific council of the program of the RAS [Russian Academy of Sciences], delivered the report. Academicians A. Mirzabekov, D. Knorre, and R. Petrov and other prominent scientists and specialists participated in the discussion.

The state program of Russia "The Human Genome" is a part of the state priority direction "The Life Sciences and Biotechnology."

The goal of the program is the complete decoding of the molecular structure of the human genome. The work on the program is being developed in two basic directions—the production of physical and genetic maps of human chromosomes and the establishment of the sequence of the nucleotides of their DNA, as well as the determination of the role of genes in the realization of physiological functions and the occurrence of pathological states.

The fulfillment of the program is expected by 2005. It has been integrated in the international system of work on this theme.

At present 173 groups of researchers, which received grants on a competitive basis, are working on seven projects of the program. About 70 organizations and enterprises of Russia, including the Institute of Molecular Biology imeni V. Engelhardt, the Institute of Molecular Genetics, the Institute of Bioorganic Chemistry imeni M.M. Shemyakin, the Institute of Cytology and Genetics of the RAS, and others, are taking part in it.

During the work on the program "The Human Genome" most important scientific results were obtained. Here are just a few of them:

- a fundamentally new method of establishing the sequence of nucleotides in DNA was developed;
- the gene of metastasis in case of a malignant neoplasm was distinguished;
- hybrid cells with individual human chromosomes were obtained;
- the methods support of specialized centers of the diagnosis of hereditary diseases, including prenatal diagnosis, was developed;
- plans of the mapping of separate human chromosomes were developed.

Among the most important jobs, the fulfillment of which is envisaged by the program during 1992-1993, are:

- the mapping and the establishment of the sequence of nucleotides in human chromosomes 3, 5, 13, and 19;
- the development of methods of the diagnosis of a number of hereditary diseases. Moreover, the methods of work will be improved and new instruments, reagents, and computer programs will be developed.

The state program "The Human Genome" is a component of the international program, the coordination of which is being carried out by the International Human Genome Organization (HUGO).

Since 1991 an affiliate of the European HUGO organization has been operating in Moscow on the basis of the Institute of Molecular Biology of the RAS. An information center, which provides Russian researchers with quick access to computer data banks on nucleotide and amino acid sequences, operates under the affiliate.

Today the financing of the program is the basic problem. During 1987-1991, 87 million rubles [R] were allocated from the state budget for its implementation. In 1992 it is proposed to spend about R130 million. Last year and this year they ceased to allocate convertible currency. Researchers are experiencing extreme difficulties, since many necessary materials and reagents are not produced in our country. The aid of the international scientific community is the only source. Under these conditions the quickest granting to scientific institutions of preferences—first of all, the exemption of instruments, reagents, and other materials from duties—as well as the creation of the conditions for the obtaining of currency as grants are necessary.

The fact that the state scientific and technical programs of Russia lack the status of a legal person is adversely affecting the implementation of the program.

Concept for Privatization of S&T Institutes, Organizations

937A0015B Moscow RADIKAL in Russian No 36 (93),
Sep 92 pp 9, 11

[Text of "The Concept of the Privatization of Institutions and Organizations in the Scientific and Technical Sphere" of the Ministry of Science, the Higher School, and Technical Policy of the Russian Federation—first two paragraphs are RADIKAL introduction]

[Text] In August 1992 the Collegium of the Ministry of Science, the Higher School, and Technical Policy of the Russian Federation discussed the concept of the privatization of institutions and organizations in the scientific and technical sphere. The basic approaches to the elaboration of the problems of privatization were approved, but it is proposed to modify several aspects of the concept.

Taking into account the most lively interest of the scientific community in this problem, RADIKAL considers it necessary to publish the concept in its not final version, inviting the readers to discuss both the very problem of the privatization of the scientific sphere and the concept itself. All the received suggestions will be turned over to the Ministry of Science, the Higher School, and Technical Policy.

1. INTRODUCTION

1.1. The State of the Scientific and Technical Sphere of Russia

The economic situation in the Russian Federation (the budget deficit, inflation, the production slump, the investment crisis, the lack of receptivity of the economy to the achievements of scientific and technical progress, and other factors) is having a disastrous effect on the state of the scientific and technical sphere:

a) the structure of the S&T [scientific and technical] product with respect to its types is getting worse—in a number of sectors the share of scientific research work is declining (due to the reduction of centralized financing, on the one hand, and the lack of interest of production in new developments, on the other hand); as a result of this the number of models of new equipment, which are being proposed for production, is decreasing in dynamics. The amount of exploratory scientific research work and scientific research work under way is declining especially sharply;

b) scientific institutions are using any means of maintaining their financial status. At present the most prevalent are such means as:

—the leasing of buildings, premises, and equipment of scientific institutions to outside enterprises and organizations;

—the use of production capacities for the output of nonspecialized products. The share of nonspecialized operations is increasing actively, while at some organizations it comes to 90 percent of the total amount of work;

c) the number of people working at scientific organizations is decreasing, including due to the departure of talented scientists because of the low wage, the lack of social prestige and the conditions for research activity (internal and external emigration);

d) at the majority of scientific organizations the problem of secondary employment exists. Most often they try to solve it by establishing a network of small enterprises under the given scientific organization and by exempting from overhead a portion of the work being performed. The staff members of organizations sell their developments to outside structures, using in this case the technical base of the scientific organization and the scientific and technical potential which has been accumulated at it;

e) the lack of a sufficiently complete legislative base is leading to an increase of conflicts between the state and large and small producers in the scientific and technical sphere.

Between the state and the small producer there is conflict with regard to the disposal of the intellectual product (which is produced, for the most part, on the basis of assets which were created in the past at state expense). The haphazard privatization of the product of scientific labor is not accompanied by the appearance of a new type of investor in science.

Between small and large producers there is conflict with regard to the disposal of resources. The small enterprise operates on the resource base of a large organization, but only a portion of the scientific collective actually disposes of the finished product, receiving rent from the previously accumulated intellectual and material potential.

As a result the process of scientific activity as a whole has been destabilized. Large and small producers in the sphere of science do not complement each other (the large ones should ensure the stability of the system and its competitive ability in the "fight" for resources with other spheres, the small ones should assume the risk and ensure the flexibility and dynamism of the system), but clash. The state has been deprived of the opportunity to check the use of the intellectual product, the process of the maintenance and replacement of the fixed capital of science has been undermined. The slowing of the replacement of fixed capital is occurring, inasmuch as the assets, which were received for the scientific product, for the most part are used for the remuneration of labor.

The social tension in labor collectives is increasing. On the one hand, the influence of the factors listed above and, on the other hand, the completely inadequate social and legal protection and the extreme difficulty of the job placement of specialists, who have lost their job, are having an effect.

1.2. The Privatization of Science as an Element of S&T Policy

The main structure-forming factor of Russian science is its monopolism. The entire area of research and development is divided among a small number of supermonopoly sectors with a closed reproduction cycle (that is, with their own systems of personnel training, capital construction, supply, and so on). Within the sector accordingly the large scientific research institute or design bureau-monopolist, which is closely connected with the sectorial management body and, therefore, in practice does not depend either on consumers or on the rest of the scientific community, was the most typical subject of scientific and technical activity. All this was backed by a system of "head" scientific institutions and by the maintenance of science mainly by means of the centralized funds of ministries. That is, technological monopolism, the monopolism of scientific schools under the conditions of the administrative system inevitably

developed into a management monopoly. Therefore, even the simple reorientation of a single specific institute toward a new sphere of activity leads to the loss of an entire link from the innovation chain and to the breaking of this chain.

Under these conditions the creation of a stable and self-developing organizational economic market mechanism of the output of intellectual products, which ensures the development and efficiency of both science itself and the national economy as a whole, is the most important task of the privatization of the scientific and technical sphere. For this first of all privatization in the S&T sphere should ensure the efficient distribution of the rights of ownership of the intellectual product.

The most complicated and important problem is the attraction of responsible and competent investors. Not so much the willingness to pay the state more money (and then to change the specialization of the organization, using mainly its premises) as guarantees of skilled investments after privatization with the retention of the basic sphere of activity (if only for a specific period) and the willingness to postpone the derivation of a stable profit for a specific (often considerable) time and to risk investments, which naturally implies the responsibility and competence of the buyer, should be the main criterion of the selection of owners in the scientific sphere. This will make it possible to keep the S&T sphere from complete collapse and to preserve and strengthen its comparatively strong units.

The existing standard support of the process of privatization does not make it possible to solve this problem completely. At the same time the formulation of the question of a completely independent program and standard base of the privatization of science seems not to correspond to reality. The path of partial changes of the State Program of Privatization, which take into account the specific nature of science and make it possible to carry out this process with the minimum losses, seems more advisable.

2. THE PREREQUISITES OF THE PRIVATIZATION OF SCIENCE

2.1. The Inventory of Scientific and Technical Organizations

The possibility of buying only a viable enterprise, the reorganization and technical modernization of which govern the profit in the future, can attract a responsible and competent investor. This means that it is necessary to conduct an inventory of the network of scientific and technical organizations for the purposes of:

- the analysis of their breakdown by sectors of science, sectors of the national economy, and stages of the innovation cycle;
- the determination of the organizations (in old and new forms), the financing of which will be carried out from assets of the state budget;

- the determination of the organizations that are recommended for transfer to production structures;
- the determination of the organizations, in which the state intends to maintain its influence by retaining a controlling interest;
- the determination of the organizations, the privatization of which can be carried out already now in the usual manner.

The conducting of a goal-oriented inventory of scientific and technical organizations should be preceded by the development of methods of the evaluation of the activity of the organizations and their certification in accordance with the following criteria:

- the marketability of products;
- the level of importance of the organization for the state;
- the level of the scientific and technical results;
- the level of the scientific and technical potential.

2.2. The Determination of the Priority Directions of Science and Technology, Which Are Supported by the State

The viability of S&T organizations is determined to a large degree by the amount of exploratory research, by the directions of this research, as well as by its correspondence to the priority directions of science and technology, which are supported by the state (by direct financing and/or a system of preferences). Therefore, the choice and publication of such priority directions are the most important necessary condition of the attraction of responsible inventors who are capable of implementing state priorities in the area of scientific and technical development.

2.3. The Adoption of Standard Documents Which Regulate the Relations of Intellectual Property

Before the state opens access to the scientific sphere to private (including foreign) investors, the questions of regulating the relations of intellectual property should be settled. This problem is connected both with the task of privatization and with the task of the stimulation of scientific activity.

At present owing to the vagueness of the relations of intellectual property any scientific associate, who is familiar with the research being conducted, regards the stock of knowledge, which has been accumulated at scientific institutions, as his own property. Meanwhile, whereas the posing of the question of the ownership by labor collectives of the products they make in other fields of activity still can make some sense, in science specific scientists are the "producers" of ideas. Therefore, the formation of normal relations with respect to the production of and the rights to use the scientific product requires the precise regulation of the rights of all the

participants in the innovation process, even the individual specialist. Meanwhile, the presently occurring mass selling off of gained knowledge both through the system of individual contracts with private firms and by means of the establishment of all kinds of small enterprises, which deal, as was already noted, in developments of large scientific research institutes, testifies clearly to the economic and legal crisis in scientific research. Given such a state of affairs not the specialist, who is the developer, and not the owner of the capital that is invested in the development (in the majority of cases the state), but whoever is the first to find a buyer stands to gain. This has a discouraging effect both on scientists themselves and on those who in principle could invest assets in scientific development.

Therefore, the reform of the relations of property in science should begin with the quickest putting into effect of the laws, which have already been passed by the Supreme Soviet, and the rapid drafting of a package of legislative acts which regulate the relations of intellectual property in the spheres that are not covered by the passed laws.

2.4. The Drafting of Standard Acts Which Regulate the Attraction of Foreign Investments

The attraction of foreign investments to the economy of Russia is an important factor of the stabilization of the economic situation and the overcoming of the investment crisis. For the scientific and technical sphere this is also the preservation of scientific collectives and the maintenance and development of the scientific potential of the country. In the crisis for the state it is necessary to preserve the self-reproducing scientific sphere, even by the transfer of the scientific business and, thus, the right to dispose of its results to a foreign investor. However, it is necessary to distinguish in advance the areas of S&T activity, which are of strategic importance for the future socioeconomic position of the country in the system of the world division of labor and which the state should finance independently and, accordingly, use the results of research and development in its own interests.

3. APPROACHES TO THE CLASSIFICATION OF S&T ORGANIZATIONS ACCORDING TO THE POSSIBILITY AND ADVISABILITY OF THEIR PRIVATIZATION

The distinction among scientific and technical organizations of the objects of privatization and those, which should be left under the control of the state (in its ownership or with the retention of a controlling interest), first of all is governed by the economic goals in the sphere of scientific and technical activity. The minimization (limitation) of the current spending of the state on science in combination with the maximization of future revenues is the most natural goal. This means:

- the retention of full state ownership of scientific organizations of the basic and academic type with a high product quality and S&T potential (with the

possible change of their organizational status, for example, in case of conversion into state science centers);

- the preservation of state control through a controlling interest over large organizations which have a high level of quality of marketable products and the S&T potential until a worthy investor, who is capable of buying and investing assets in the development of organizations, is found;
- the selling of scientific organizations with a low quality of scientific products;
- the privatization of a greater part of the system of scientific service (design and architectural planning organizations, computer centers, multiple-access centers, as well as hotels, dispensaries, sanatoriums, vacation homes, preschool institutions, and so forth).

The privatization of S&T organizations should become the most important element of the structural reorganization of the sphere of science, which assumes the efficient reorganization of every S&T object and the development of new forms of organizations (state science centers, laboratories, joint-stock companies, and so forth). This means that the distribution of the rights of ownership in the S&T sphere should correspond to this approach.

For the purposes of guaranteeing state security it is necessary for the present to prohibit privatization at S&T organizations, which perform work in the areas of fissionable and radioactive materials, nuclear weapons, space hardware; in the areas of systems and elements of any types of arms, munitions, explosives, and so forth. This does not rule out the possibility of privatization in the future, if the state waives the rights of exclusive ownership of such organizations and changes over to a system of the licensing of activity in the indicated areas.

4. METHODS OF PRIVATIZATION IN THE S&T SPHERE

In the process of the privatization of the S&T sphere it is proposed to use practically all the methods which are presented in the Law of the Russian Federation "On the Privatization of State and Municipal Enterprises in the Russian Federation":

- the sale of organizations by noncommercial investment competition;
- the sale of shares of public joint-stock companies;
- the sale of organizations by commercial competition (on the condition of the retention of the type of activity for not less than two years);
- the sale of the property (assets) of unprofitable enterprises (enterprises being liquidated) at auction;
- the buying back of leased property.

In the State Program of the Privatization of State and Municipal Enterprises of the Russian Federation for

1992 and in the Model Plan of Privatization, which was drafted by the State Committee for the Management of State Property of the Russian Federation for the implementation of Edict No. 721 of the president of the Russian Federation of 1 July 1992, great importance is attached to auctions and commercial competitions on the sale of enterprises and shares, which accomplishes first of all the task of the stabilization of the financial situation in the country by the maximization of revenues from the sale of objects. No guarantees of the retention of the type of organization in this case, as a rule, are envisaged.

For the purposes of preserving the scientific and technical potential of Russia as a whole it seems inadvisable to sell profitable S&T organizations at auction. In case of the privatization of scientific organizations the use of the mechanism of noncommercial investment competition is more promising. Precisely this mechanism makes it possible to accomplish most completely the task of attracting a responsible investor.

The preservation of the closed nature of the innovation cycle within the S&T organization in a number of cases is also possible by the establishment of holding companies on the basis of the selling of shares in the subdivisions of S&T organizations, which among other things results in the naturalness of the dying off of inefficient subdivisions and structures.

Moreover, it is advisable to permit the privatization of S&T organizations through investment on the permission of the Ministry of Science, the Higher School, and Technical Policy and the State Committee for the Management of State Property of the Russian Federation by the making by the state of its own contribution (in the form of assets of S&T organizations) to the public joint-stock companies that are being newly established. Such a means is advisable, in particular, for individual unpromising directions, which have at the same time a large and skilled personnel potential, which it is possible and necessary to use. However, it is difficult to use this means, inasmuch as it is at variance with Point 6 of Article 14 of the Law of the Russian Federation "On the Privatization of State and Municipal Enterprises in the Russian Federation," where the banning of the merger, the incorporation of enterprises is spoken about.

5. THE ESTIMATION OF THE VALUE OF PROPERTY IN CASE OF THE PRIVATIZATION OF THE S&T SPHERE

The approved Temporary Procedural Instructions on the Estimation of the Value of Objects of Privatization are based on the specification of the initial price of an enterprise or the charter fund of a joint-stock company as the sum of the residual book value of the assets of the enterprise (according to accounting returns) less credits, loan capital, and settlements with creditors. It is possible to use such a method of valuation in the process of the privatization of S&T organizations, but here it is necessary to realize clearly that this is a primitive method of

the valuation of fixed and working capital, but not a scientific organization as an object of business. The scientific business is governed to a much greater degree than other business by such factors as the accumulated scientific and technical potential and the image of the firm, to which it is impossible to give a direct monetary valuation, they are inseparable from the business.

The attempts to use current market valuations when conducting auctions and competitions under existing conditions will hardly yield adequate results, inasmuch as a secondary securities market has not been formed and more or less stable ideas about the value of assets and the business as a whole are also lacking. The gradual changeover to the worldwide practice of evaluation according to the anticipated results of activity, which is a means of obtaining an objective idea about the real efficiency, is a practicable way out of the formed situation.

The only solution now is to take indirectly into account the indicated factors when selling shares within the labor collective of the scientific organization by the granting to its "scientific nucleus," which is the basic creative and, thus, productive force, the right to acquire a portion of the shares at face value, for example, within the limits of up to 5 percent of the amount of the authorized capital stock. This will stimulate the preservation of the personnel nucleus of the scientific organization. Otherwise it is proposed to the potential investor actually to invest money in the acquisition of physical and technical assets, not the business. However, this means requires the making of changes in prevailing standard acts.

To avoid the creation of additional social conflicts in collectives membership in the "scientific nucleus" should be determined by some formal attribute, for example, by membership in an academic (scientific and technical) council.

6. Restrictions in Case of Privatization

It seems necessary to establish some restrictions in case of the privatization of the S&T sphere (in addition to those established by Edict No. 721), in particular:

- to permit the privatization of pilot production subdivisions of S&T organizations only within this organization or in case of the mandatory joining of a holding company, which has been formed on the basis of subdivisions of the base organization;
- to permit the privatization of S&T subdivisions of an organization only in case of the strict thematic specialization of these subdivisions; of functional subdivisions on the condition of the performance of more than 70 percent of the amount of work outside the basic activity of the organization, and of others only with the consent of the labor collective of the organization;

- to permit privatization on the condition of the retention for a specific time of the type (the belonging of the organization to the scientific and technical sphere is meant);
- to secure controlling interests of individual organizations in federal property (up to three years)—in accordance with the list of the Ministry of Science, the Higher School, and Technical Policy;
- to regulate the participation of foreign investors in privatization for the purpose of protecting national scientific and technical interests.

7. BENEFITS IN CASE OF THE PRIVATIZATION OF S&T ORGANIZATIONS

For the creation of additional stimuli for responsible investors it is advisable to establish benefits in case of the privatization of the S&T sphere:

- a discount on the selling price of the organization on the condition of its use for the preservation and development of the S&T potential;
- the right of the "scientific nucleus" of the organization to the acquisition of common shares at face value within the limit of up to 5 percent of the amount of authorized capital stock on the condition of the conclusion with them of contracts which guarantee their work in the given organization for a specific time;
- the permitting of S&T organizations, which lease premises which belong to state organs of power, to buy back these premises (the estimate of the value is to be made in accordance with the methods that are used in case of privatization).

8. STATE CONTROL OF INDIVIDUAL TYPES OF S&T ACTIVITY

It is necessary to allow individual types of S&T activity only under strict state control. The grounds for the establishment of such control can be:

- the state interests of the country (defense, state security, and so forth);
- the effect of the results of research on the course of development of mankind as a whole (studies of particularly harmful substances and pathogens of dangerous epidemics, biotechnology, genetic engineering, and so forth);
- a particular hazard for the life and health of an individual, including the researcher himself (tests of new drugs, studies of psychotropic agents, and so forth).

Obviously, two means of establishing such control are possible: reprivatization and licensing.

One must not rule out the likelihood that in individual cases the question of the forced conversion of already

privatized organizations into state organizations (reprivatization) may face the state. Therefore, it is necessary to carry out the anticipatory drafting of standard documents which regulate the process of reprivatization, including in the form of the forced buying back of an organization from the owner. Reprivatization should be carried out only in accordance with a decision of the government of the Russian Federation on the joint representation of the State Committee of the Russian Federation for the Management of State Property and the Ministry of Science, the Higher School, and Technical Policy of the Russian Federation.

The path of licensing, that is, the issuing of state licenses for the right to work in a specific S&T area (for example, with toxic agents) in combination with a system of the state regulation of the use of the results of this work, the appropriate control, and sufficiently effective stimuli against violators of this system, is also possible.

9. THE PHASES OF THE PRIVATIZATION OF THE S&T SPHERE

On the basis of the foregoing at present the carrying out of the rapid (wholesale) privatization of S&T organizations seems inadvisable owing to the lack of the necessary prerequisites for its accomplishment. The gradual (stage-by-stage) privatization of the S&T sphere, which is aimed at increasing the efficiency of its functioning, is necessary.

Phase I. September 1992-December 1992.

a) The selective selling of shares in and privatization of S&T organizations with an average number of workers of more than 1,000 or with a book value of the fixed capital on 1 January 1992 of more than 50 million rubles (in conformity with the Statute on the Commercialization of State Enterprises With Simultaneous Conversion Into Public Joint-Stock Companies, which was approved by Edict No. 721 of the president of the Russian Federation of 1 July 1992, "On Organizational Measures on the Conversion of State Enterprises: Voluntary Associations of State Enterprises Into Joint-Stock Companies"; in conformity with Edict No. 426 of the president of the Russian Federation of 27 April 1992, "On Urgent Measures on the Preservation of the Scientific and Technical Potential of the Russian Federation," Decree No. 2980-1 of the Supreme Soviet of the Russian Federation of 11 June 1992, "On Putting Into Effect the State Program of the Privatization of State and Municipal Enterprises in the Russian Federation for 1992," and the concept of the privatization of science).

b) The privatization (in the usual manner) of design and design and surveying organizations, design bureaus, which do not conduct scientific research work and are not grouped with objects of the Russian Academy of Sciences, sectorial academies, the Ministry of Health of the Russian Federation, the Ministry of Science, the Higher School, and Technical Policy of the Russian Federation, the Ministry of Education of the Russian

Federation, the Ministry of Ecology and Natural Resources of the Russian Federation.

c) The establishment and adjustment of a procedural and standard base which ensures the possibility of the mass privatization of S&T organizations.

d) The drafting of the Program of the Privatization of the S&T Sphere.

Phase II. 1993-1995.

a) The selling of share in and the privatization of S&T organizations in conformity with the Program of the Privatization of the S&T Sphere.

New Academy To Bridge Gap Between Basic, Applied Sciences

937A0008A Moscow RADIKAL in Russian No 34 (91), Sep 92 p 11

[Interview with Doctor of Technical Sciences Prof. Boris Vladimirovich Gusev, Corresponding Member of the Russian Academy of Sciences and president of the International Engineering Academy, by RADIKAL correspondents Yuriy Stapanov and Aleksandr Trutnev, under the rubric "Presentation"; date and place not given: "The International Engineering Academy as a Middleman Between Basic and Applied Research"—first paragraph is RADIKAL introduction]

[Text] The International Engineering Academy has been organized on the basis of the USSR Engineering Academy, which has operated since 1990. A meeting of its presidium, at which questions of the development of the MIA [International Engineering Academy] were discussed, was held the other day in Moscow. Our correspondents addressed to the president of this academy, Corresponding Member of the Russian Academy of Sciences and Doctor of Technical Sciences Prof. Boris Vladimirovich Gusev, the request to answer a few questions.

[RADIKAL] Boris Vladimirovich, newer and newer scientific, scientific production, and sectorial systems, which are called academies, are now being established in our Commonwealth. To what is the establishment of the International Engineering Academy due?

[Gusev] Previously it was customary in our country to divide scientific research into basic and applied research. For decades the USSR Academy of Sciences, universities, and a number of base higher educational institutions dealt with questions of basic research. However, with respect to the amount of investments sectorial scientific research institutes performed the most extensive research. Such a situation led to two negative trends: the isolation of basic research from production and the disunity of applied research by sectors. We are hoping to eliminate such a misalignment. The MIA will play the role of a middleman between basic and applied research

and will perform a coordinating role, ensuring contact between scientists of different applied directions of science.

Sections, which should become think tanks of the development of sectors, operate in the system of the academy. In the basic directions alone there are now 17 of them.

[RADIKAL] Shall we, perhaps, present some of them in greater detail?

[Gusev] For example, 36 full members and corresponding members of the Russian Academy of Sciences are performing work in the aerospace section. Doctor of Technical Sciences and Academician Secretary G.Ye. Lozino-Lozinskiy, winner of State Prizes and general designer and director of the Molniya Scientific Production Association, heads it. The section helps in the organization and coordinates scientific research and planning and design work in the area of aircraft and rocket technology, space shuttle transport systems, satellite systems and orbital stations, space technologies and ecological monitoring systems. Conversion research, particularly the introduction of the scientific and technical achievements of the Energiya-Buran project in other sectors of the national economy, is becoming an important direction.

The analysis of the development of hypersonic aircraft has already been made, the development of personal pilotless aircraft is being carried out. A data bank on items of space and aircraft hardware is being set up, recommendations and programs on the establishment of systems of the ecological monitoring of space, air, and water transport are being prepared. There are also a number of other interesting developments.

[RADIKAL] And in what new directions does the academy propose to perform work in the immediate future?

[Gusev] Among the priority directions is the very urgent task of the development of the agroindustrial complex, including the development of systems of the transportation, storage, and processing of agricultural products. In the plans of the academy there is also work on the program of energy conservation and the development of new power technologies and equipment; the development of information, innovative construction technologies; a block of programs of dual-purpose "break-through" technologies, the latest technologies for the needs of the national economy; ecological programs of the habitat.

[RADIKAL] Boris Vladimirovich, as it seems to us, the academy today has to accomplish tasks of not only a technical and economic, but also a social nature. In particular, we have in mind the problem of "the brain drain," which is connected with the difficulties of the changeover to a market.

[Gusev] The problem, of course, is vital. This is the crime of our system, our state that due to the impossibility of feeding their family graduate specialists are forced to go into trade or services or else to leave the country altogether. A market economy without advanced technology cannot ensure the revival and well-being of society. Is this really not clear to this day?

In the countries of the CIS last year about 8,000 organizations carried out scientific and technical development with a total amount of financing of more than 30 billion rubles. The analysis of the breakdown of scientists by fields shows that about 50 percent of their number are employed in the area of the technical sciences. Thus, the International Engineering Academy, which unites the academic engineering structures of the Commonwealth, should support a large army of engineers under the conditions of the changeover to a market and should alleviate for them the crises in society. And we are trying to do this. I can cite the following specific example: When the reduction, the cutback of space programs occurred at the Molniya Scientific Production Association, many scientists and specialists felt disposed to leave. We made them members of the academy, made some work available, and commissioned them to supervise one direction or another. The result is that none of the people, to whom attention was given in time, left the country.

But the efforts of one organization are a drop in the ocean. The main problem is that the states themselves should change radically the attitude toward people of intellectual labor and begin, finally, to appreciate intellectual property as highly as it is appreciated in developed countries.

Federal Science Center Concept Criticized

937A0008B Moscow RADIKAL in Russian No 34 (91).
Sep 92 p 10

[Article by Vladimir Pokrovskiy under the rubric "Reform in Science": "The Spore, in Which the Truth Is Being Preserved"—first paragraph is RADIKAL introduction]

[Text] Since the beginning of the summer, more precisely, since the very time that Minister of Science Boris Saltykov presented to the government of the Russian Federation his concept of science policy, the talk about the future system of federal science centers has not subsided. Everyone wants to go there, but, it appears, no one exactly knows what federal centers are and, strictly speaking, why they are needed.

Representatives of the Ministry of Science are refraining for the present from lengthy comments on this theme. Ilya Lomakin-Rumyantsev, who now heads the Science, Culture, and Education Department of the staff of the government, calls the theme of federal centers extremely delicate and also prefers a terse style. But meanwhile, according to his information, there is a quite short time

left to wait for a decision on the establishment of federal centers, the latest date is October-November.

In general, when an official prefers to keep quiet, people immediately begin to suspect him of secrecy. Perhaps, in this case it is so, but, it appears, the reserve of the highest scientific administration should be ascribed to its frank ignorance—according to our information, the concept of federal science centers, which exists today, is unfinished, and for that reason it cannot be submitted for the discussion of the people, who are vitally interested in this matter.

But even from the information available today it is entirely possible to imagine the essence of federal centers. And when you do, it becomes clear why they consider this problem delicate.

First of all let us express a tritely obvious idea: The system of federal centers will have meaning for the people, who feel drawn to it, only when something more than a simple change of name lies behind this term. The Russian Kurchatovskiy institute Science Center gained hardly anything from the fact that it began to be called something different. This is absolutely the same Institute of Atomic Energy imeni I. V. Kurchatov, as it was before, but divided into several legal persons who have been united again into the same complex. I have serious reason to suspect that the Kurchatov people did not win a kopeck from this procedure.

To all appearances, the Ministry of Sciences is proposing something more significant than the simple change of name and, perhaps, the change of subordination—although, of course, such an outcome is not ruled out. In the already mentioned concept of science policy, among the other important principles it is possible to see one which has a most direct bearing on the question being examined—to preserve what it is possible to preserve by means of rather strict selection.

Indeed, as everyone knows perfectly well, far from every prospering state can keep in working order the entire enormous scientific apparatus, which was left to us from the Soviet Union. As it is becoming clear today, the state is hardly capable of giving our science even the minimum that it needs for elementary survival. By the end of the year, when institutes will have to make utility payments—for rent, water, heat, electricity, and others—the storm will break. Almost no one has this money. The Academy of Sciences, for example, can spend the budget being allocated to it only to see to it that its scientists would not die of hunger. There is no money for equipment, for preparations, for foreign scientific journals, or for trips. Science, in essence, is perishing.

The only thing that it is possible to do in such a situation (and this was written about in the report of the analytical center of the Russian Academy of Sciences of last year, while both Boris Saltykov and Ilya Lomakin-Rumyantsev were in charge in turn of the research for this report) is to select the scientific directions, in which we are still at the world level, and to try to save at least

this. For which in the report they proposed to establish science centers—with a completely different structure and a completely different mechanism of operation.

This should be what in principle of operation resembles a spore. The federal science center in the conception of the present scientific authorities is a system which enables a given scientific direction to survive hard times. They should sit there in this spore and not be exposed to the destructive effect of the era of changes, they will have a guaranteed subsistence level, a reproducing scientific school, the improvement of experimental equipment, the updating of information, direct contact with the scientific community of the West—in short, everything that is necessary for normal scientific development. And for which much money is necessary.

Perhaps, this is the most reasonable thing that it is possible to propose. But at the same time it is also a very cruel thing for the people who today are not at the world level. First of all because no one intends to allocate additional money for federal centers, but even if they intend to, there is none. They will establish federal centers (they promise to start the process by the end of fall) by means of the already allocated budget. And, in general, it is possible to guess into what this will develop.

Let us begin with the wage of a scientific worker. Even if a miracle were to happen (but it will not happen) and tomorrow inflation were to cease, all the same the wage of a scientific associate of a federal center should come to 10,000-15,000 rubles [R] a month. During the times of the accursed stagnation the wage for scientific associates took from the total budget of science approximately 45 percent of all the money. Now the times have changed, this ratio has changed, and now about 30 percent of the budget is being spent on wages—science has increased in cost. Thus, let us add another R30,000. In order not to be petty, let us round the amount off to R50,000. In a year this will come to R600,000. In order to keep equipment in working order, technical personnel are desirable, it is also necessary to pay them a wage. With allowance for this let us round off R600,000 to R1 million. R1 million a year is the price of saving for science one "man-associate."

I inquired about the budget for 1993. There not everything is clear, but for the first half of the year R27 billion will apparently be allotted to science. If the Supreme Soviet of the Russian Federation is taken unawares, if the people's deputies, who have been dazed by a very

filling banquet, pass the budget of next year, in this case one should not expect that the annual budget of Russian science will leap higher than R150 billion. R150 billion is the limit of hopes.

Now consider that this entire operation on the establishment of federal centers will take place painlessly for science, if not more than 10 percent of the total budget is allocated for it. But for R15 billion it will be possible to feed only 15,000 associates. This is terribly few. This is three to four Kurchatov institutes. Hence it follows that they will most likely cut more than a 10-percent chunk off the total science budget, otherwise the venture itself loses meaning. It may happen that there will not be enough for the centers and it is not the centers that will be left with nothing at all.

In any event one should, perhaps, heed the warning of Lomakin-Rumyantsev that the institutes, which succeed in getting among the "spores," most likely will undergo a substantial reduction of personnel. This is still that little gift—as is known, in Russia not the most untalented people, but the most unprotected people come under the reduction of personnel. Will the Ministry of Science succeed in some two months in "working through" this question? So that a very ticklish theme is federal centers—even if we do not talk about the institutes, at which it, this world level, does not exist.

In the already mentioned report of the Analytical Center of the Russian Academy of Sciences it was stated that the sharp reduction of the number of people working in science is an absolutely necessary thing, no matter how we would like to avoid it. And it was also stated there that this will be a giant tragedy, a tragedy of national scale. And it is coming closer all the time and it is becoming more and more dangerous to delay it.

Of course, gloomy forecasts, just as optimistic ones, have in Russia the habit of not coming true. And it is possible to recall that the Ministry of Science is a ministry and, thus, is entirely capable of not having time by the end of fall. There are also other factors which are damping the tragedy for people (and which, it is true, aggravate it for science as a whole).

For example, at many institutes the officially unannounced reduction of personnel is now in full swing—everyone who can and for whom science has not become the highest religion is fleeing from science. But at least one does not have to make a cut by force, one does not have to cut to the quick.

Foreign Sales Key To Survival of Russian Science*937A0028A Moscow MOSCOW NEWS in English
No 43, 25 Oct-1 Nov 92 p 10*

[Interview with Mikhail Ostrovsky by Maria Temchina:
"Millionaires in the West, Beggars in Russia"]

[Text] Lev Artsimovich's famous phrase: "Science means the satisfaction of your own curiosity at the state's expense," is not consistent with the present-day situation. The state can afford practically no expenditures. So what remains is curiosity alone. How can it be satisfied nowadays? This subject is discussed in an interview by our correspondent with Mikhail Ostrovsky, Corresponding Member of the Russian Academy of Sciences, laboratory head at the Sechenov Institute of Chemical Physics.

M.O.: Domestic science has always had an advantage vis-a-vis its Western counterpart. Do you know what that is? Carelessness. I could meet a friend from a different research institute at a seminar, or simply in the street, and tell him: "Look, I have an idea. Perhaps you'll find it interesting. Let's try it at your installation." And we started working.

MN: And if the idea proved unproductive?

M.O.: No big deal: no effect is no effect. We dropped it. After all, no money was given specifically for its development. We continued doing our usual tasks and waited for another occasion.

MN: When something else would come to you?

M.O.: Right. And what's wrong with that? You might say that this was irresponsible. But then we could busy ourselves with whatever we liked. Science is, after all, a creative approach and endeavour. One feels bored when everything has been written down and is predictable. One needs freedom, the lack of shackles. Why are the Americans now "discovering America" for themselves through our scientists? Why do emigres sometimes get a laboratory at once? Simply because the Americans have already tested the technicality of the Japanese, the meticulous punctuality and masterly performance of the Chinese (on the mainland and in Taiwan). But what they need badly indeed is fresh blood, an ability to think broadly and untraditionally. This is exactly what Russian science, traditionally, has been famed for.

MN: But as you have said, carelessness is also in our "blood." Today you make "atoms for peace," tomorrow you fiddle about with cybernetics. Of course, being funded by the state, one could afford doing solely what was interesting. But the past won't return. The question now is one of survival.

M.O.: There's only one way out: to sell our development projects. Either in our own country or abroad.

MN: But do we have something to offer?

M.O.: Of course, we do. Artificial crystalline lenses for the eyes, for example, or contact lenses. This is the most

profitable business in the world. In general, we have a great many interesting development projects. But the point is that in the event of success inside the country, the earnings will be in rubles. They will not keep a laboratory going, let alone an institute. No investments can be counted on: for the time being we lack such commercial structures.

MN: Then there is a need to sell abroad, and to do it quickly if there is a good buyer.

M.O.: Quickly? And who will pay for the cost of testing at the clinic? Our poor Institute of Chemical Physics or the Academy? In the West this costs a lot of money and takes a long time—from five to ten years. Our Pharmacological Committee has been doing this gratis.

Of course, there is a need for hard cash. But how can it be obtained? The surest way is the system of grants long practiced in the West. But there are problems even here. If the project is worth doing, the Americans are ready to give us, say, 50,000 dollars for two-three years. Incidentally, today we are formalizing exactly such a grant jointly with the Institute of Eye Research at Harvard University in Boston. But here a non-committal reply in our usual style won't do. It's a whole dissertation, in which the scientist very specifically, and in great detail, sets forth what he is going to do and how he will do it. The report is scrupulous, in the manner of articles or papers. And here it will no longer be possible to digress to the scientific "trifles" which are so dear to our heart: you are bound by the terms of the grant.

MN: But then you have cash-in-hand. But has their system of grants halted progress in science and technology, or the movement of thought?

M.O.: You are wrong with respect to cash-in-hand. Ours is a special kind of state. It would seem that the Iron Curtain has been lifted: you can travel on contracts, with the system of grants, on a private visit—whatever you like. But the trouble is that the dollars we earn do not reach us—those who actually do the work. First the government will slice off the best part of the pie, then the bank, the Academy.... What remains for the staff member? A pitiful ten per cent. When there is no incentive, all desire to work vanishes. It is a paradox: money is being offered, but we can get it only if we go where it is being offered. But suppose I'll need to carry out part of the research programme here, in my laboratory. Shall I again have to work gratis? We are fed up with this. And how much our own state loses on this.... Things go to the levels of the ridiculous. The Americans must also devise for us a mechanism for receiving foreign currency.

MN: Do you have specific proposals?

M.O.: Certainly. But no one is interested in them. The idea is simple: there is a need to set up a Scientific Bank of Russia where I, as a laboratory head, would have my own currency account. Let the state get its 40 per cent, but 60 per cent is mine—so give it to me. I will decide

myself what I shall do with it. Why are the most capable people—electronics experts, chemists, mathematicians—now leaving for commercial structures? Not only because of money, but because over there they have a free hand. They do, of course, make decent money, but for decent work, too.

It's impossible to abandon our science, with its schools and traditions, to the mercy of fate. Today our government is behaving like a bad mother. A good child will survive, of course. The only question is: in whose lap—his own mother's or a stepmother's?

Gaydar Decree on Funding the Russian Academy of Sciences

937A0027D Moscow MOSKOVSKIYE VESTI
in Russian 29 Oct 92 p 5

[Decree No. 538 of the Government of the Russian Federation of 3 August 1992 "On Measures on the Support and Development of the Russian Academy of Sciences"]

[Text] Attaching great importance to the development of basic science as the basis of the economic, social, and cultural development of Russia and to execute Edict No. 228 of the President of the RSFSR of 21 November 1991 "On the Organization of the Russian Academy of Sciences," the Government of the Russian Federation resolves:

1. To recommend to the State Committee of the Russian Federation for the Management of State Property, to the executive bodies of state power of the republics within the Russian Federation, krais, oblasts, autonomous formations, and the cities of Moscow and St. Petersburg, and to ministries and departments of the Russian Federation to examine in 1992 the question of the transfer to the Russian Academy of Sciences and its regional departments (hereinafter called the Russian Academy of Sciences) of the buildings, structures, and other property, which is leased by its institutions, organizations, and enterprises.

2. The executive bodies of state power of the republics within the Russian Federation, krais, oblasts, autonomous formations, and the cities of Moscow and St. Petersburg are to issue to the Russian Academy of Sciences, its institutions, organizations, and enterprises the corresponding documents on the right of the indefinite (permanent) use of the parcels of land, which were previously made available to them.

3. The Ministry of Science, the Higher School, and Technical Policy of the Russian Federation by means of the assets allocated from the republic budget is to review systematically the amount of financing of the Russian Academy of Sciences with allowance for the volume and nature of the tasks being performed, the change of prices, and the steps being taken by the Government of the Russian Federation on the social protection of the population.

To envisage that a portion of the earmarked budget allocations to the Ministry of Science, the Higher School, and Technical Policy of the Russian Federation is spent for the support of international activity and scientific cooperation with foreign countries, import purchases of instruments and equipment, and the subscription to foreign scientific literature.

4. To establish that the budget allocations, which have not been used during the year and were received by institutions, organizations, and enterprises of the Russian Academy of Sciences for the conducting of scientific research work, are carried over and are not subject to confiscation, with the exception of instances specified by the Government of the Russian Federation.

5. The Ministry of the Economy of the Russian Federation and the Ministry of Trade and Material Resources of the Russian Federation are to envisage when determining the total amounts of state purchases the material and technical resources, which are necessary for the construction of facilities of the Russian Academy of Sciences and the fulfillment by institutions of the Russian Academy of Sciences of basic research and the most important scientific and technical programs, which are financed from the republic budget of the Russian Federation.

6. The Ministry of the Economy of the Russian Federation is to envisage annually the allocation of limits of centralized capital investments for the construction of facilities of science and the social sphere of the Russian Academy of Sciences.

7. The Ministry of the Economy of the Russian Federation for the purposes of giving state support in the publication of scientific literature and periodicals is to envisage annually the allocation to the Russian Academy of Sciences in accordance with its orders of paper, cardboard, and binding materials.

The Ministry of the Press and Information of the Russian Federation is to give assistance in the supply of the Russian Academy of Sciences with printing foil and ink.

8. To permit the Russian Academy of Sciences to conduct export-import barter operations on the basis of licenses which are issued in accordance with established procedure.

9. To grant the Russian Academy of Sciences the right to establish funds for the accomplishment of the tasks of the social development of its institutions and organizations and the social protection of personnel by means of assets which are obtained from various nonbudgetary sources.

10. The Government of Moscow:

—is to ensure the construction during 1993-1994 of three apartment houses with 100 apartments each at the expense of the Russian Academy of Sciences for the accommodation of foreign scientists with their

families, who are enlisted for the conducting of basic research in priority directions of science;

—is to envisage during 1992-1994 the designing and construction on one of the parcels, which has been allotted to the Russian Academy of Sciences and until now has not been developed, of a 20,000 square meter dormitory of the hotel type for the accommodation of graduate students;

—is to allot a parcel of land for the construction at the expense of the Russian Academy of Sciences of a 1,000-room hotel complex;

—is to envisage, starting in 1993, annually, the construction at the expense of the Russian Academy of Sciences in the city of Moscow of apartment houses with a total area of not less than 50,000 square meters for scientific personnel and specialists of the Russian Academy of Sciences;

—jointly with the administration of Moscow Oblast is to allot within a 50-kilometer zone a parcel of land with an area of 150 hectares for the construction at the expense of the Russian Academy of Sciences of an urban-type settlement.

11. The administration of Moscow Oblast is to allot parcels of land for the construction at the expense of the Russian Academy of Sciences of dacha settlements and the establishment of horticultural associations.

12. This decree takes effect as of the moment of its signing.

[Signed] Ye. Gaydar

Pokrovskiy Report on Financial Difficulties of RAS

937A0027C Moscow PRAVDA in Russian 20 Oct 92 p 2

[Article by Anatoliy Pokrovskiy: "The Faint of Science From Hunger. Scientists of the Russian Academy of Sciences Call for a Protest Meeting"]

[Text] It is possible, perhaps, to define the present general condition of science as midway between two classical diagnoses: "The patient is more dead than alive" and "The patient is more alive than dead." The reason is acute financial dystrophy. Money is scarcely being allocated for the main bread of the scientist—research and production activity. The only thing to do is to fall into a scientific faint from hunger. And people are.

At the Far Eastern Geology Institute, for example, there are no assets for expeditions which could discover new reserves of natural resources, it is impossible to buy equipment, information literature, and even simply writing paper. In short, scientific activity has come to a standstill at the institute, within the walls of which B.N. Yeltsin held a meeting with the scientific community of Vladivostok and which gave rise to so many hopes that were based on his promises.

And now the geologists decided to appeal again to Boris Nikolayevich: "We consider further silence criminal," they write, "because, unfortunately, we do not hear worried voices. The people, who represent academic science in the Supreme Soviet of Russia, in the Presidential Council, and in other bodies of power, which were established by the new democracy, are silent. The academician 'generals,' who at one time through the newspaper PRAVDA stated that their academic wage increment is a guarantee of the independence of their opinion, are silent."

The Far Easterners are not alone. In March 75 Moscow institutes appealed to the Supreme Soviet of the Russian Federation and to the president with regard to the critical state of affairs in science. But they also did not receive even a response. Well-informed people relate that in recent weeks President of the RAS Yu.S. Osipov met twice with B.N. Yeltsin, presented to him a detailed list of the problems of the academy, and...received the usual assurances.

What scientific naivete! I remember that when they nominated Yu.S. Osipov for president of the RAS, his supporters hinted significantly that he "is also from Sverdlovsk." The high-level patronage does not help now as it did in the old days, one has to cut one's coat according to Gaydar's cloth. Later, apparently, they understood this in the presidium of the RAS and at the end of September made a decision which in academic circles they christened as follows: "The overworked horses...are being cut."

The point of the decree is: by 1 November to make a decision on the reorganization of scientific institutions, based on the financing allotted to them for the fourth quarter, contemplating the preservation of especially priority scientific directions; to prepare proposals on the concentration of institutions for the purposes of reducing the rent of buildings, and so on. Everything would have been passable, but, as in the army, they did not prepare alternate positions for redeployment. As was noted at a meeting of the Council of the Trade Union of Workers of the RAS, in the country a science policy is simply lacking, and against this background it is difficult to talk about priority directions, except for the transformation of Russia into a raw material appendage of the West. We do not need, it turns out, Lomonosovs and Mendeleyevs.

In an open letter to B.N. Yeltsin, R.I. Khasbulatov, and Ye.T. Gaydar the Council of the Trade Union notes: "At present basic science in Russia is in a catastrophic state. The irreversible disintegration of formed scientific collectives and accordingly the collapse of scientific schools, which exist in the country and are recognized throughout the world, have begun. The consequences of this process are obvious—the collapse of basic science will make impossible the attainment by our country of the world technical level. Consequently, Russia is destined to become forever a raw material appendage of the industrial powers...."

"Taking into account the urgency of the present situation, we are forced to resort to an action which is not characteristic of scientists—to the organization on 1 November 1992 of protest meetings against the policy of the government, which is leading to the ruin of science in Russia. We warn that in case of the disregard of this appeal as well we will be forced to come forth with the demand for a vote of nonconfidence in the leadership of the Russian Federation."

It is impossible to say in advance what the meeting will be like and what results it will yield. But it is now already clear that in the process of "Gaydarization" the scientific intelligentsia has gone through a good political school. The Far Easterners, with whose appeal to B.N. Yeltsin this report began, speak about this as follows in their letter to PRAVDA: "It is time to wake up, it is time to work actively. For it is with out help that the 'democratic forces' won. Today we are overwhelmed by our own lack of rights, by our own poverty, and by the lack of our need to 'the new Russia.' One must not be silent! Our silence is gold for the people who, having changed masks and having pushed aside those who had already gorged themselves and had grown fat, today are at 'the feed trough.' One must not be silent! Because our silence would be clearly interpreted as approval of everything that has happened and is happening. One must not be silent! Because our silence today is a verdict against tomorrow."

It remains to be added that in Moscow the meeting is planned at 1200 on 1 November at the central entrance of the Central Park of Culture and Rest. And that workers of schools and higher educational institutions want to join the scientists—our education is also falling into a faint from hunger.

Osipov To Attend Chinese Conference on S&T Financing

937A0027B Moscow NEZAVISIMAYA GAZETA
in Russian 22 Oct 92 p 2

[Article under the rubric "Official Visits, Contacts" (INA "SOLYARIS")]

[Text] On 23 October a representative delegation of the Russian Academy of Sciences headed by its president, Academician Yuriy Osipov, is leaving for Beijing. The scientists will take part in an international conference on problems of the financing of science and will visit science centers in Beijing, Shanghai, and other cities of China.

Russian Academy of Sciences Budget for 1992 Summarized

937A0009A Moscow NEZAVISIMAYA GAZETA
in Russian 14 Sep 92 p 12

[Article (INA "SOLYARIS"): "Ten Percent of the Associates Have Left the Academy"]

[Text] The budget of the Russian Academy of Sciences for the fourth quarter of 1992 has been announced—it has been specified in the amount of 2.65 billion rubles [R], which is R10 million more than the amount of the budget allocations of the third quarter. During all of 1992 budget assets were allocated to the academy monthly.

Given an average wage of associates of the the Russian Academy of Sciences in August 1992 of about R4,000 (the average for the national economy of Russia is R5,300), the departure of the most skilled, creatively active portion of the associates for other spheres and abroad is occurring. In six months of 1992 for these reasons the number of personnel of the Russian Academy of Sciences decreased by 9.8 percent.

Academician Calls for 'Extreme' Budget Measures

937A0027A Moscow POISK in Russian No 37 (175),
5-11 Sep 92 p 4

[Interview with Academician of the Russian Academy of Sciences Dmitriy Georgiyevich Knorre, academician secretary of the Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds Department and director of the Institute of Bioorganic Chemistry of the Siberian Department of the Russian Academy of Sciences, by Olga Kolesova, under the rubric "What Is Science To Be Like?"; place and date not given: "Now in Our Fauna Everyone to a Man Is Equal"—first paragraph is POISK introduction]

[Text] POISK has already commented on the edict of the president of Russia "On Urgent Measures on the Preservation of the Scientific and Technical Potential of the Russian Federation" (see Nos 29, 30, 32, 1992). But in the discussion of the Basic Research Fund, the principles and sources of financing, and, consequently, the future of Russian science it is difficult to confine oneself to commentary alone. We will try to give all interested people the opportunity to express their opinion. Today the subject of our interview is Academician of the Russian Academy of Sciences Dmitriy Knorre, academician secretary of the Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds Department and director of the Institute of Bioorganic Chemistry of the Siberian Department of the Russian Academy of Sciences.

[Kolesova] What do you think, Dmitriy Georgiyevich, can the edict of the president "On Urgent Measures on the Preservation of the Scientific and Technical Potential of the Russian Federation" actually become a turning point in the fate of our science or does the lot of famous Edict No. 1 on education, which at first aroused great hopes, but then no fewer disappointments, await it?

[Knorre] Of course, I cannot predict the behavior of parliament, ministries, departments—whether they will block the implementation of the edict or, on the contrary, will carefully fulfill it. The effectiveness of the measures, which are aimed at saving basic science,

depends on how weighed and thought out the system of the distribution of assets, the system of financing will be.

Unfortunately, the impression is being created that neither the leadership of the Academy of Sciences nor scientists themselves realize fully in what a difficult situation the country is. The opinion exists that it is possible to save a large part of our science purely by means of state support.

But meanwhile extreme and, I would say, rigorous measures are needed now. There is the mass departure of scientists abroad. People simply are not enduring the wretched conditions of existence and are leaving. The majority forever. Because the western standard of living for us is unattainable. At any rate, for the present generation. The people, for whom it is becoming impossible to work, are also emigrating. If the conditions for the implementation of their ideas and their potential existed here, they would stay.

In short, if we wait any longer, in a year to a year and a half we will lose personnel almost completely, there will be no one to train the next generation of scientists.

I repeat: In order to keep in the country if only a portion of the creative scientific associates, extreme measures are necessary. But the Academy of Sciences is not undertaking them. It as before is financing institutes on the basis of the size. As they say, "by the number of heads," not "by the number of brains." And no attempts are being made to distinguish the priority directions.

I made at a meeting of presidium of the RAS [Russian Academy of Sciences] the following proposal. Whatever the finances of the academy are (and their amount is determined by the possibilities of the government), they should be divided into three parts. By means of one part it is necessary to ensure the preservation of the structure of institutes. The minimal administrative and management staff and operating services. The second part of the assets is to be spent on the scientific backbone of the institute. First of all the heads of laboratories and the members of councils for the defense of dissertations should be provided with base financing. Because without a scientific backbone the existence of an academic institute is pointless, while without an infrastructure it is impossible. A researcher will himself hardly be able to fix a computer or to draw up an estimate of expenditures. But try to find an accountant or even a skilled worker given the enormous demand for them on the part of commercial structures!

As to the financial support of scientific research proper, it is necessary to give scientists an opportunity to earn money. First of all within the academy itself. It is well known that commercial structures—with the most rare exception—are not interested in basic research. Therefore, let the other part of the finances of the RAS be distributed through competition. In a year or two it will be clear that there are institutes which in principle are incapable of acquiring any grant. It is they that it is

necessary to close. Let them seek themselves assets for existence outside the Academy of Sciences.

Today no one can make a qualified, thought out, impartial decision on the closing of one institute or another. The institute itself will not make such a decision out of a sense of self-preservation. If the leadership of the departments is given the right to close institutes, the danger of subjectivism and voluntarism will arise. The system of scientific councils, which should give expert assessments, actually does not work. Everyone is afraid to give a negative opinion and thereby to let someone down. Now if the presidium were to resolve that money is allotted through competition, then it would be possible to make some selection.

Let us be realists: It is necessary to reduce institutes, it is necessary to promote the departure of a portion of the associates. There are very many people who could work successfully, for example, in commercial structures. Both they would gain from this and science would not lose that much. But the administration is afraid to let them go, because the size of the institute will automatically decrease, and consequently, the financing "by the head" will be reduced....

In spite of what was said above, I do not at all consider, unlike the extremist-minded part of the scientific community, that it is necessary "to raze to the ground" the entire existing system of the organization of science. Incidentally, in the area of financing we also have positive examples. Take if only the system of state scientific and technical programs (GNTPs). What was done, for example, with respect to the earth sciences is very sensible. State scientific and technical programs make it possible to survive somehow or other. Our institute this year even bought something. However, the wage of associates is meager. No scientist earns due to these programs if only half the salary of a miner.

[Kolesova] Will the Basic Research Fund be able to improve the situation?

[Knorre] What ought the fund do? Put a significant portion of the assets into major—of several million rubles—grants. And give these grants to small groups of researchers, so that they could both buy equipment and provide themselves with a normal wage. I emphasize, the grant should be awarded not to an institute, not to a laboratory, but to a group of researchers. And it is necessary to direct attention first of all to world recognition. Our science has not yet been completely devastated by "the brain drain," we still have something to save. Two hundred major grants will not, of course, rescue everyone. But people will at least know for what it makes sense to fight. Today scientists, who are engaged in basic research, do not have any hope of getting out of poverty. But such hope would be of great importance, because, as I have already said, there are a large number of people who do not want to leave Russia, and it is necessary to give them a chance to provide themselves with tolerable working and living conditions.

The Basic Research Fund could accomplish such a task in part. For budget financing keeps institutes at the lowest level, prompting literally everyone to go abroad or to leave for trade.

[Kolesova] If the system of financing proposed by you is introduced, there is the risk that young specialists will remain "over board." They neither belong to the scientific backbone of the institute nor have world prestige. But grants will most likely be given first of all "for names"....

[Knorre] The system of state scientific and technical programs is enabling us to hire young specialists. Especially as researchers a little older and a little stronger are leaving. The interest in talented young people, I think, will remain.

Now the main thing is to formulate a strategic plan of the development of our science for the next few years, having made an honest, self-critical analysis of each specific sphere and having compared the obtained results with the world results.

Some American said: "In the United States so many discoveries are made not because we have many distinguished scientists. We simply have many scientists." For present-day Russia, it seems to me, such a route is unacceptable: It is too expensive. Selection is inevitable. And we cannot allow ourselves the luxury to wait until life itself makes it for us.

Tax Law Revisions Affecting S&T Institutions

937A0016A Moscow RADIKAL in Russian No 36 (93),
Sep 92 p 14

[Article: "There Is a Law"]

[Text] With the passage of the Law "On the Making of Changes and Additions in the Tax System of Russia" (16 July 1992) the next phase of the drive in support of science, which is living in poverty, has been concluded.

I. The Value-Added Tax

There is exempt from the value-added tax scientific research and experimental design work which is performed:

- at the expense of the state budget;
- by educational institutions on the basis of economic contracts (the Law "On the Value-Added Tax," Article 5, Point 1, Subpoint "l");

as well as the assets of the Russian Basic Research Fund, the Russian Technological Development Fund, and the nonbudgetary funds of ministries, departments, and associations, which are formed for these purposes in accordance with legislation (the Law "On the Making of Changes and Additions in the Tax System of Russia," Article 1, Point 2, Subpoint "c").

The Tax on the Profit of Enterprises and Organizations

The taxable profit is reduced by the amounts:

—which are channeled by higher educational institutions and their subdivisions and structural elements into the development of educational and scientific activity and into the strengthening of their material, technical, and social base;

- of the dividends, which are paid by enterprises to natural persons, in case of their investment within the enterprise for the retooling, modernization, and (or) expansion of production, including the expenditures on scientific research and experimental design work, as well as for the construction and modernization of facilities of the infrastructure.

(The Law "On the Making of Changes and Additions in the Tax System of Russia," Article 1, Point 10, Subpoints "f," "g")

III. The Tax on the Property of Enterprises

There is not assessed this tax the property:

- of budget-carried institutions and organizations (the Law "On the Tax on the Property of Enterprises," Article 4, Point "a");
- which is used exclusively for the needs of education and culture (the Law "On the Tax on the Property of Enterprises," Article 4, Point "d");
- of scientific research institutions, enterprises, and organizations of the Russian Academy of Sciences, the Russian Academy of Medical Sciences, the Russian Academy of Agricultural Sciences, the Russian Academy of Education; state science centers, as well as scientific research institutions, ministries, and departments of the Russian Federation in accordance with the list which is approved annually by the government of the Russian Federation (The Law "On the Making of Changes and Additions in the Tax System of Russia," Article 1, Point 8, the last paragraph of Subpoint "b").

IV. On the Charge for Land

There are completely exempt from the payment of the land tax:

- scientific institutions, pilot, experimental, and educational pilot farms of scientific research institutions and educational institutions of the agricultural and forestry type for plots of land, which are used directly for scientific and educational purposes, as well as for the testing of strains of agricultural and forestry crops (the Law "On the Charge for Land," Article 12, Point 3);
- institutions of education and health care, which are financed at the expense of the state budget (the Law "On the Charge for Land," Article 12, Point 4);

—higher educational institutions, scientific research institutions, enterprises, and organizations of the Russian Academy of Sciences, the Russian Academy of Medical Sciences, the Russian Academy of Agricultural Sciences, the Russian Academy of Education; state science centers, as well as scientific research

institutions, ministries, and departments of the Russian Federation in accordance with the list which is approved by the Government of the Russian Federation (The Law "On the Making of Changes and Additions in the Tax System of Russia," Article 1, Point 1, Subpoint "b").

Novosibirsk Brain Drain Viewed

PM1811112992 Moscow PRAVDA in Russian
17 Nov 92 p 2

[Report by Viktor Sapov: "With Subsidy at the Ready"]

[Text] Tomsk-Novosibirsk—The Russian academy is experiencing no less a crisis of establishment than society itself. The question has been put point-blank: a star of the first magnitude or a poor Cinderella? How to make it grow: with subsidies or commerce?

Only yesterday I would hardly have been allowed across the threshold of the Russian Academy of Sciences Siberian department's supersonic combustion laboratory. Everything related to the creation of space technology and other promising aircraft remained a complete secret to the uninitiated. But this establishment has been declassified. Especially, as it has emerged, since the experiments at the institute of theoretical and applied mechanics are well known abroad. The NASA director has even paid a visit here. The French defense minister was also interested in the Novosibirsk scientists' device during his trip to Siberia.

I shall not fill the reader with a technical "flower arrangement," with all kinds of special terms. I shall merely say that this research is bringing closer a treasured aim—creating an engine for a supersonic passenger aircraft whose speed could be 20-25 times greater than that of present airliners.

"Don't think I am bragging," remarked Candidate of Technical Sciences A. Lazarev, a scientific staffer at the laboratory. "But the worldwide search in this direction has as it were been filtered through the prism of our experiments."

I could cite many such examples from the life of the Novosibirsk Akademgorodok, particularly from the sphere of the military-industrial complex, with which Siberian science was most closely linked. But now that people have grown hoarse from debating the fate of Russian science, there is no point in waxing lyrical. It is far more valuable to sum up the proposals with whose aid it is possible to lend impetus to fundamental and applied research which is being carried out on the basis of the branches of the Russian Academy of Sciences Siberian department in Tomsk, Krasnoyarsk, Irkutsk, Yakutsk, Chita, and Ulan-Ude.

Science, like all economic relations, rests on three main foundations: cadres, resources, that is sources of finance, and management. In general Siberia has been lucky in its scientist cadres. For instance, many renowned people who have been able to defend the interests not only of the region but also of the Fatherland as a whole have passed through the Novosibirsk scientific center. But now many of those who worked alongside them are drawn to a change of job. Mainly they are nuclear physicists, mathematicians, geneticists, and biotechnology specialists.

"The brain drain does not frighten us," says Academician N. Dobretsov, first deputy chairman of the Russian Academy of Sciences Siberian department and general director of the joint institute of geology, geophysics, and mineralogy. "They have not left forever, but under temporary contracts. And they will return when the uncertainty in our country ends. If only it does not last for decades."

"I am by no means an opponent of international scientific exchanges, but not in their present form," objects V. Areshchenko, chief of the Russian Academy of Sciences Siberian department presidium foreign relations section. "These contracts will bring us no real benefit. On the contrary, our specialists will take away the developments of their laboratories and sections. And that in turn threatens to drain away our brains but also to cause our science to lose its positions."

The polarization of opinions is typical for Akademgorodok. To some extent it reflects the mood of its creative inhabitants and their ferment and vacillation and the actual conditions in which stratification according to living standard and number of academic degrees occurs. Possibly an affluent academician has no need to look for money or to go abroad for long. Nonetheless, many venerable scientists, rather than young people, are leaving for foreign parts and, as V. Areshchenko rightly says, it is not second-rate developments that they are taking with them. And although wages "over there" are three to five times lower than "among their own," they are still very high, if they are translated into rubles.

On the other hand the Novosibirsk scientific center is now bristling with cooperatives. A year ago over 800 entrepreneurial structures were registered here. According to the most modest calculations their turnover was nearly 200 million rubles [R]. And that when the Novosibirsk scientific center's annual budget is R250 million. And if the leadership here were a little smarter it would be possible successfully to create a zone of active scientific and technical entrepreneurship. If only to supplement their own budget and the rayon budget.

"In fact scientific and technical entrepreneurship has been driven underground," stressed Ye. Kuznetsov, deputy director of the institute of information systems. "That is provoking an expansion of the mass shadow export of scientifically valuable ideas, developments, and output to other regions of the country and abroad."

The local press has published many other specific proposals on the improvement of the state of affairs in Akademgorodok. There has been frequent criticism of the Russian Academy of Sciences Siberian department presidium for its dilatoriness and temporizing. The squandering has begun of even those meager resources and property which we had, as has happened at the Chita institute of natural resources, auctioned off to cooperative members.

The structure of management of Akademgorodok's material and technical supplies are giving rise to many

rebukes as a whole. Above all the lack of a proper conception of and mechanism for the "de-departmentalization" of housing and establishments in the socioconsumer sphere is having an effect. It would do no harm, the scientists said, to make fuller use, in conjunction with entrepreneurs, of free working areas, workshops, instruments, installations, and so forth. But instead of perfecting new forms and methods for improving the institutes, the Russian Academy of Sciences Siberian department has embarked on the path of least resistance, asking the government for R50 billion and then throwing its hat into the ring to cover the deficit in wages for cultural and sports workers at the expense of the rayon budget, which is already on the rocks.

Even today the situation in the Russian Academy of Sciences Siberian department is not brilliant. They are more concerned here with the search for sponsors, on whom the main stake is being placed in financing fundamental research. Hope of funds from the center for specific purposes has not evaporated. But given the hole in the government's pocket they should not count on these funds particularly. Yet already the scientific institutes must clearly see the prospects, have a feeling for programs and priorities, and look around for ways of implementing them. So far there is no basis for concluding contracts. The "Siberia" program, even after rectification with a consideration for regional concepts, has been in a state of suspension in priority avenues like biotechnology, the comprehensive processing of raw material, and so forth. There are plans, but once again everything depends on funds.

What is the way out? A radical organizational restructuring of fundamental science is needed. Here lies the meaning and form of the further existence of Akademgorodok and all its subdivisions. The institute of geology, geophysics, and mineralogy was the first to find its way. Here they did not start to rely only on budget appropriations, they themselves decided to earn money from science.

The Tomsk academy center created on the basis of the institute of atmospheric optics headed by V. Zuyev. And the thrust of the innovation is as follows. Academician V. Zuyev has taken on and divided the "Optika" scientific and technical complex which, in conjunction with its special design bureau, used to carry out contract work worth R21 million (that is five times more than budget appropriations!) into three independent institutes while retaining the general directorate and joint scientific council and with common vital services and independent commercial structures. It is planned that the latter will deal skillfully, to a modern standard, so as to back up fundamental research and the social protection of all workers. Here fundamental science remains untouched—the scientists themselves will not start to engage in commerce. On the contrary, the institutes' subdivisions will be strengthened, because good relations with foreign colleagues will be elaborated.

Science and commerce. So far the Siberians are taking their first steps in this direction. And science must be promoted right now.

French Firms Recruit Russian S&T Personnel

937A0017A Moscow IZVESTIYA in Russian 13 Oct 92
p 4

[Article by IZVESTIYA correspondent Yuriy Kovalenko: "French Laboratories Are Hunting for Russian Scientists"—first paragraph is IZVESTIYA introduction]

[Text] Paris—The brain drain from the CIS and other countries of Eastern Europe to the West is not a spontaneous, but in many respects an organized and well-prepared process. Western firms are conducting a hunt for the best minds on our land, while the authorities most often prefer to shut their eyes to this.

About 400 engineers and scientists from East European countries, who were recruited by universities and companies, according to the data of the newspaper LIBERATION, are now already working at leading French laboratories and enterprises, including military plants. Along with Russians, who make up the majority, Ukrainians, Romanians, Hungarians, Czechs, and Slovaks are working at them.

In search of the best specialists, LIBERATION continues, tens of French delegations one after another are visiting Moscow, St. Petersburg, and Kiev. There they are constantly coming across Japanese, Americans, and Germans, who are also trying to enter into contacts and are offering Russians a job.

The French Ministry of Research is openhandedly issuing them visas and invitations. This year alone it gave about 250 stipends for a term of one month to a year to high-level scientists from countries of Eastern Europe, for 40 percent of whom the CIS accounted.

The mechanics of the recruitment of the best minds, which was worked out by a special interministerial committee, is extremely simple. A university or higher school finds on the other side of the former "iron curtain" an institute, which which they would like to collaborate. After this they appeal to their authorities for assistance. In this way "scientific tandems" are established. Examples of such tandems are—in the area of mathematics and physics—the St. Petersburg Institute imeni Steklov and the Paris Jussieu University and—in the area of microbiology—the Strasbourg Pasteur Institute and the institute in Pushchino.

In turn, the French Ministry of Industry gives each year about 20 of its own stipends, owing to which scientists receive the opportunity to work a while at the most advanced laboratories of French enterprises: Thomson (electronics), Pont-Lulenc (pharmaceutics), Siemens France (building materials), Gensette (biotechnology), and Pasteur Merieu (drugs).

"For us it is a matter of establishing close relations," a representative of Siemens France explains. Here they avoid in every way the word "commercial," although they have them in mind—in the distance future.

Thus, the commissariat for atomic energy of France trains engineers in questions of the safety of nuclear power plants. However, on returning home such specialists actually can play the role of commercial representatives of the country where they underwent training.

In this sphere, LIBERATION stresses, the general directorate for arms is also not idle. In June of this year its delegation visited Russia and Ukraine for the purpose of finding 15 scientists and engineers and inviting them to do practical training in France. Upon its completion all of them should return to their enterprises. But will everyone want to do this?

Several well-known firms, such as, for example, the aircraft firm Dasso or Societe Europeenne de Propulsion (SEP), prefer to finance the activity of enterprises locally. Thus, SEP, which produces the engines for the Ariane rocket, signed 33 contracts with scientific research laboratories of Russia, Ukraine, and Kazakhstan. Soon, to all appearances, five new contracts, which are connected with the development of engines for supersonic aircraft, will be concluded.

The countries, which in words constantly speak in favor of "collaboration" with Russia, can in no way justify the enticing of the best specialists of the former Soviet Union, LIBERATION writes. Now it is not 1945, when the Americans, Soviets, British, and French tried to kidnap engineers from the team of Werner von Braun. Therefore, the West is trying to display some caution and restraint.

Whereas some scientists have left for Iran, Iraq, or Algeria, the best ones, in the opinion of the French, all the same have stayed. Nevertheless, in the words of one of the recruiters, the search everywhere for a distinguished scientist or, rather, a chief with a team of first-class specialists, who, having moved to the West, could make an unprecedented technological breakthrough, is now under way in Eastern Europe. Here everyone is afraid of missing his chance and of letting such a genius slip through his fingers.

New VAK Chairman Advocates 'Strict, Centralized Control'

937A0010A Moscow POISK in Russian No 36 (174),
29 Aug-4 Sep 92 p 3

[Interview with Nikolay Vasilyevich Karlov, chairman of the Higher Certification Commission of Russia, by Sergey Leskov, under the rubric "What Is Science To Be Like?"; date not given: "The VAK: The Old Name in the New Style. An Interview with Nikolay Karlov, the New Chairman of the Higher Certification Commission of Russia"]

[Text] [Leskov] Nikolay Vasilyevich, we are talking with you in the spacious building of the VAK [Higher Certification Commission], with which all scientists of the former USSR are well acquainted. This building on Ulitsa Griboyedova was designed and built specially for the VAK, with allowance for the specific nature of its work, which requires not only offices for staffs, but also large rooms for meetings of the expert councils. But a sort of strange bustle reigns in the building: From some offices they are taking piles of papers, while others, on the contrary, are locked tight.

[Karlov] In accordance with an order of the president of Russia the Higher Certification Commission is leaving this building and is giving it up to the Higher Arbitral Tribunal. The certificate of transfer has already been signed. We were given the building that belongs to the State Committee for Science and Technology, on Ulitsa Nezhdanova, 21. Before the revolution the Medved Furnished Rooms were located there. You can imagine how equal the exchange is for us....

I do not dispute it, the arbitral tribunal is an important institution of the market economy, while its present premises on Neglinka are in horrible condition and do not even remotely resemble a palace of justice. But in Moscow there are a large number of luxuriant apartments which are standing practically empty. The fact that the choice fell to an institution of the scientific type once again confirms the unenviable place which has been assigned to science in our society.

My rounds as the new chairman of the VAK among high offices did not change anything. Apparently, the question of the "dispossession" of the VAK was irrevocably decided during the long half a year, while the commission after the departure of Academician Ye. Shemyakin was left without a chairman. The logic of bureaucrats is unequalled: After the reduction the staff of the VAK comes to 90, work space is also calculated on the basis of this number of people. But the very idea of the VAK is based on the extensive enlistment of the scientific community. We need premises, where our 1,700 experts, from whom more than 30 expert councils have been formed, can meet. No matter how they are criticized, these are for the most part the most prominent scientists of the country. While they work in the VAK as experts actually as a voluntary service.

[Leskov] Thus, whereas usually upon appointment executives receive advances, you, figuratively speaking, have to begin the game by getting the ball from your goal. But it is possible to look at the unpleasant incident as inevitable retribution, a response to the great large number of critical remarks meant for the VAK....

[Karlov] I came across such an approach in many offices. I had occasion to hear that the only, they say, purpose of the VAK reduces to heraldry, to the distribution of degrees to learned careerists. But why proceed from what the VAK should not be like? Yes, there are enough shortcomings in its work. But it is impossible not to see

that this is a unique institution. It is possible, in my conviction, to organize the work of the VAK in such a way that its shortcomings will turn into merits.

The VAK has a unique electronic database. Unfortunately, for the present it remains unclaimed and is dead weight. But in connection with the commencing privatization and the selling of shares, when it will be necessary to attach some material equivalent to the accumulated scientific potential, the VAK will be able to rate the activity of every specialized council, higher educational institution, and scientific research institute. This problem is a difficult one. It is necessary to study the geography of works at the meeting point of disciplines, according to "sleeping" and active themes, and to give some score to each item.

But the enlistment of our specialists for the conducting of an independent examination may prove to be an even more important and promising area of the application of the possibilities of the VAK. One of the curses of Russia is the fact that there was never an independent examination in it. Frankly speaking, in no country do they like it. But nevertheless they conduct it, clearly understanding that, however embarrassing the conclusion of independent specialists is, the inevitable losses from the flattering formulas and praises of pocket professors cannot be compared with the grim truth.

Precisely the VAK with its finished structures, with expert councils in all directions, with a wealthy database, and with other traditions of interaction with large enterprises is ideally suited for the conducting of an independent examination of all kinds of projects, which they now assign to various institutions by random selection. The importance of an independent examination will increase as market relations are formed. The VAK must merely change goals and guidelines, and it can become a most important market institution. They always reproached the VAK with the fact that there are no analogs of it anywhere in the world. But if it is transformed sensibly, this unique nature will become an advantage. Then, I think, orders for the conducting of an examination of various projects will come to us even from abroad.

After the signing in the government of Russia of the decree on the status of the VAK, which is anticipated before long, I will try to convince officials of the necessity of expanding the functions of the commission. In accordance with this status I consider it useful to change the structure of management of the VAK—to orient the deputy directors not according to fields of knowledge, but toward certification, expert work, and economic questions.

[Leskov] It is possible to assume that, however matters with the examination go, the personal interest of candidates for a long time yet will reserve the priorities for the certification activity of the commission. The flow of claims and complaints of various senses to the VAK and

against the VAK with regard to the defense of dissertations is not abating. Do you see an opportunity to improve the situation in this direction?

[Karlo] Of course, certification also needs reforming. It is necessary to grant specialists of higher educational institutions and scientific research institutes the right of the final decision on candidate dissertations. A step has been taken in this direction, but it is necessary to advance farther. It is advisable to place only doctoral dissertations under the jurisdiction of the expert councils of the VAK.

In the future, I believe, the abandonment of the two-level system of scientific certification, which is traditional in our country, and the changeover to a four-level system—a bachelor, a master, a doctor of philosophy, a doctor of sciences—which has been adopted by a number of developed countries, including the United States, would benefit science. Such a system corresponds most adequately to the evolution of a scientist from the acquisition of a broad basic education up to in-depth specialization on its basis, to the movement toward a specific result and its recording in a written work, and, finally, to the obtaining of a significant result which can be regarded as an independent brick in the building of progress.

[Leskov] It is, at first glance, a paradoxical formula. After all, many critics of the VAK believe that two dissertations are too much for a scientist. They say that a scientist expends his best efforts on the writing of these works, there is no longer inspiration left for real science. But you are proposing to make this path even more difficult, by introducing four formal degrees.

[Karlo] In my conviction, the writing of a serious, coherent text, in accordance with which colleagues evaluate your skill, is a necessary stage for the formation of a real scientist. A scientist who writes a dissertation is doing very much first of all for himself. Not everyone succeeded in clearing this stage, hence critics appear. But the people, for whom a title was an end in itself, now are sifted out by life itself, for a degree no longer plays the former role in a career. And, if we like to refer to the West, from the experience of my own long-term work in the United States I can say that in the American scientific community they treat degrees with much piety, and a serious scientist will never scorn them.

[Leskov] But is a central certification body necessary in a society which is moving toward a market economy with its universal decentralization? What will change if at some higher educational institution of small importance they "turn out in quantity" doctors? In Bashkiria there are tons of academicians....

[Karlo] The state evaluation of scientific skill is necessary regardless of the political and economic system. Diplomas of Moscow State University and Harvard were valued at all times. Under market conditions, just as before, one cannot do without a system of equivalents, for money, the value of which is absolutized, in essence performs the same function. Only ill-informed people

believe that in the West a system of uniform scientific job evaluation is not maintained and everything has been farmed out to ostensibly completely autonomous universities and colleges. While working in the United States, I repeatedly came across various "umbrella" organizations and councils, which specify the strategy of this job evaluation, settle personnel and financial questions, and replenish materially one college or another. In case of a decrease of the certification requirements these "umbrella" organizations can impose on universities sanctions, as a result of which the prestige of a diploma or a degree awarded by it decreases sharply. The centralized monitoring of certification exists in all developed European countries, it is particularly strict in Germany.

During the present transition period strict state monitoring of the work of specialized councils is particularly important. Otherwise a situation, which is similar to the one when producers, who did not have a certificate, dumped on the market poisonous alcohol, may form in science as a result of the stamping out of sham professors.

[Leskov] After the disintegration of the USSR Russia took upon itself the financing of the VAK. However, dissertation cases as before are being sent from the sovereign states of the CIS to Moscow. Even from the Baltic Region. Not that long ago the VAK approved the doctoral dissertation of A. Ruutel, chairman of the Supreme Soviet of Estonia, while shortly before the coup in Georgia President Z. Gamsakhurdia attempted to obtain the degree of doctor of philological sciences. It is well known that only 60 percent of the modest budget of the VAK is spent directly on Russian scientists, the remainder is actually charity with respect to "neighboring foreign countries." Will these questions be settled?

[Karlo] VAKs have already been established in the majority of states of the CIS. However, due to the lack of qualified experts they exist purely formally. I do not know of examples of the defense of dissertations in the sovereign states of the former USSR. This once again confirms how difficult the organization of top-notch certification is. The representatives of a number of states are voicing the suggestion of establishing an association of VAKs with common job evaluation requirements. A meeting of executives of state certification services, at which this question will be discussed and the problem of current financial interrelations will also be settled, is planned in September-October. Incidentally, requests to merge with our certification system for a certain fee are coming to us even from the Baltic Region.

[Leskov] Nikolay Vasilyevich, in recent years you, a corresponding member of the Russian Academy of Sciences, headed one of the most elite Soviet higher educational institutions—the Moscow Physical Technical Institute. Having become chairman of the VAK, you, however, did not leave the chair of rector, although, obviously, both posts require colossal efforts. Will not such double duty affect the efficiency of work?

[Karlo] The structures of the Physical Technical Institute and the VAK are very similar. In each case the nucleus is comparatively compact, peripheral structures—expert and specialized councils and base chairs—are acquiring great importance. The mutually enriching experience, I think, will prove to be very useful. Moreover, the chairman of the VAK must in no case cut himself off from scientific and pedagogical work and turn into a mere bureaucrat. But for the Physical Technical Institute I can now do significantly more, if only due to access to a telephone "dial." Frankly speaking, I would grudge leaving the Moscow Physical Technical Institute. I consider the Physical Technical Institute national property, and I, it seems, as rector have succeeded in doing much for it. In particular, the ratio of students and instructors at the Moscow Physical Technical Institute is now the most favorable in Russia—three to one. So that I would like to continue the reforms at the Moscow Physical Technical Institute and, without delaying, to begin the reforms in the VAK.

International Institute for Geomechanics and Geological Engineering Formed

937A0017B Moscow *GIDROTEKHNIЧЕСКОYE STROITELSTVO* in Russian No 7, Jul 92 pp 53-54

[Article: "On the Organization of the International Institute of Geomechanics and Geological Engineering of the Engineering Academy of the Russian Federation"]

[Excerpt] For the purposes of increasing the level of the scientific substantiation of the safety of construction projects of the national economy of Russia, which are being designed and built, and intensifying their construction with the observance of the demands on environmental protection the International Institute of Geomechanics and Geological Engineering (MIGG), which united the most authoritative scientists, designers, and builders, was established by a decision of the RSFSR Engineering Academy in December 1991. The founders of the MIGG are: the Fundament Association, *Gidroyekt* [the All-Union Scientific Research Institute of Planning of Hydroprojects imeni S.Ya. Zhuk], the Scientific Research Institute of Power Facilities, the *Rosenergostroy* Corporation, Moscow Mine Sinking Trust No. 1, *Mosgornospetsstroy* of the *Mosinzhtstroy* PSO, the *Bezopasnost inzhenernykh sooruzheniy* Joint-Stock Company, and others.

World construction practice of the late 20th century is characterized by the grandeur of the scale and the complexity of the conditions of the erection of structures. The accomplishment of the current tasks of the construction of unique hydraulic structures, the foundations of industrial and civilian buildings under complex geological engineering conditions, large underground structures, and large-diameter tunnels dictates the necessity of an individual approach to the designs of such structures. These designs require the scientific substantiation of the technical solutions. Therefore, the basic goal of the activity of the institute consists in the

development and practical implementation of a comprehensive method of designing structures, which includes the interconnection of the technical solutions and the scientific substantiation, which is based on the present achievements of geological engineering, on the one hand, and the development of basic research in the area of geomechanics, on the other hand. Moreover, the participation of the institute in the international examination of major construction projects, the exchange of information about achievements in the area of basic research of geomechanics and technical solutions, the formulation of international research programs, and publishing activity is one of the basic tasks.

Within the institute there are four functional divisions: the geomechanics division, the geological engineering division, the design division, and the marketing and development division, which by their composition are divisions of the chief specialists and the chief engineers of the project. The elaboration of specific research problems and designs is carried out by creative collectives under the supervision of the associates of these divisions.

Among the tasks of the geomechanics division are:

the solution of basic problems of the mechanics of geological materials;

the development of algorithms and computer programs of mathematical modeling for the substantiation of the engineering solutions of designs of ground and underground structures in case of construction under inclement climatic and complex geological engineering conditions, including in seismically active regions;

the development of an application package and participation in the software sales market.

The geological engineering division develops:

new promising methods of engineering surveying for the construction of ground and underground structures;

procedural manuals of engineering surveying for specific construction projects;

methods and equipment for the checking of the state of structures and the environment, the organization of monitoring during the period of the construction and operation of objects of hydraulic, underground, and industrial construction; [passage omitted]

Ukraine Forms Academy of Computer Sciences, Systems

927G0176 Kiev PRAVDA UKRAINY in Russian
3 Jul 92 p 4—FOR OFFICIAL USE ONLY

[Article by Presidium of the Academy of Computer Sciences and Systems of Ukraine]

[Text] The Academy of Computer Sciences and Systems of Ukraine was created on a public basis with the goal of

preserving and furthering the development of the scientific, engineering, and industrial potential of Ukraine, the cradle of domestic computer building. The Academy of Computer Sciences and Systems of Ukraine is striving to unite on a voluntary basis scholars in academies, institutions of higher learning, and branches of science, as well as specialists in industry, agriculture, administration, commerce, education, medicine, and culture to extend their common efforts to the problem of scientific and technical progress, and the economic, governmental, and national cultural revival of Ukraine. The academy has the goal of fostering the widespread use of computer systems in production, directly participating in the resolution of the problems of informatization of the society in Ukraine, and coordinating efforts of scientists in the resolution of current problems in information science, mathematical modeling, numerical experimentation, artificial intelligence, systems analysis, optimization and evaluation of risk, the theory of mathematical machines and systems, intelligent software, automated control systems for various levels and purposes, the problems of automating mass media, and practical problems in economic, ecology, sociology, etc.

The academy also is viewing the problems of creating a single information network in Ukraine on the basis of current means of communication and telecommunication to provide mass access to national and world information resources. The academy will focus special attention on the problems of training and retraining personnel in computer science, the equipment and its use, as well as the problems of discovering, professionally guiding and teaching talented youth and creating the conditions for them to obtain their education at the level of world standards.

The academy has plans to organize a broad collaboration with foreign scientists, industrial specialists, and other branches of the economy, including representatives of the Ukrainian diaspora, in order to provide a world level of development in computer sciences and equipment in Ukraine. The academy will also concern itself with issues involved with the spread of the Ukrainian language in scientific and industrial activity, the development and the establishment of a professional Ukrainian terminology. The academy will take measures to create the conditions for fruitful activity for its members and organizations, including material, social and cultural conditions as well as social protection.

The organizational structure of the academy, its goals and the direction of its activity, administrative principles and financial activity are presented in greater detail in the Charter of the Academy of Computer Sciences and Systems of Ukraine.

The constituent congress confirmed the academy charter and selected the academician-founders and administrative bodies of the academy.

At the constituent congress the following were selected as academicians-founders (actual members of the Academy of Computer Sciences and Systems of Ukraine):

Adamenko, Stanislav Vasilyevich, GOTs [not further expanded] State Committee for Grain Products of Ukraine;

Ansuman, Traore (Mauritania), from the firm Tradeinternation;

Bogayenko, Ivan Nikolayevich, NPO [not further expanded] Kiev Institute of Automation;

Bogunenko, Vladimir Lvovich, Ukrainian Scientific Research Institute of Analytical Instrument Building;

Botvin, Vladimir Aleksandrovich, GOTs State Committee of Grain Products of Ukraine;

Bulyanda, Aleksandr Alekseyevich, Azovstal Metallurgical Industrial Complex;

Varenitsa, Anatoliy Grigoryevich, Presa Ukraini factory;

Vasilyev, Vladimir Ivanovich, V. Glushkov Institute of Cybernetics, Academy of Sciences of Ukraine;

Volkovich, Viktor Leonidovich, V. Glushkov Institute of Cybernetics of the Academy of Sciences of Ukraine;

Gerasimov, Boris Mikhaylovich, Kiev Engineering Radiotechnical University PVO [not further expanded];

Girnyk, Nikolay Lukich, Lvov Forestry Institute;

Gorev, Leonid, Nikolayevich, Kiev Taras Shevchenko University;

Gulyy, Ivan Stepanovich, Kiev Technological Institute of the Food Industry;

Dashkovskiy, Aleksandr Anastasovich, Analitpribor NPO;

Yeresko, Georgiy Alekseyevich, Ukrainian Scientific Research Institute of Butter and Milk Production;

Zadorskiy, Vilyam Mikhaylovich, Dnepropetrovsk Chemical Technological Institute;

Kozakevich, Mikhail Isaakovich, Dneprproektstalkonstruksiya Institute;

Kapitonova, Yuliya Vladimirovna, V. Glushkov Institute of Cybernetics, Academy of Sciences of Ukraine;

Kostitskiy, Vasily Vasilyevich, Environmental Ministry of Ukraine;

Kravets, Nikolay Mikhaylovich, from the firm Kiivguma;

Mayko, Vitaliy Ivanovich, Burevestnik factory;

Maryanovich, Tadeush Pavlovich, V. Glushkov Institute of Cybernetics, Academy of Sciences of Ukraine;

Molchanov, Igor Nikolayevich, V. Glushkov Institute of Cybernetics, Academy of Sciences of Ukraine;

Myuller, Leongard Antonovich (Germany) German Society for the Study of the History, Religion, and Culture of Russia;

Olenovich, Ivan Fedorovich, Military Academy PVO of Ground Forces;

Osinskiy, Leonid Mikhaylovich, Kiev Engineering Radiotechnical University PVO;

Pavlov, Vadim Vladimirovich, V. Glushkov Institute of Cybernetics, Academy of Sciences of Ukraine;

Popov, Veniamin Stepanovich, Zaporozhye Machine Building Institute;

Prazyan, Mikhail Vladimirovich, from the firm Kontrast;

Puryshev, Igor Nikolayevich, from the firm AP Kiev;

Redko, Sergey Fedorovich, Institute of Technical Mechanics, Academy of Sciences of Ukraine;

Sennikov, Anatoliy Antonovich, Spektr NPO;

Smintina, Valentin Andreyevich, Odessa I. Mechnikov University;

Steklogorov, Yevgeniy Borisovich, Kiev Scientific Center for Environmental Protection Technologies;

Suprunchuk, Vladimir Konstantinovich, Spektr NPO;

Tarasov, Viktor Alekseyevich, V. Glushkov Institute of Cybernetics, Academy of Sciences of Ukraine;

Tkachenko, Stanislav Iosifovich, Vinnitsa Polytechnical Institute;

Fedotkin, Igor Mikhaylovich, Kiev Polytechnical Institute;

Tsymbal, Vladimir Petrovich, Kiev Taras Shevchenko University;

Chernenko, Dmitriy Alekseyevich, Leninskaya Kuznits factory;

Shtangeyev, Valeriy Ostapovich, Sakhar NPO;

Shchepets, Nikolay Stepanovich, Administration of Environmental Protection of the city of Kiev;

Yushchenko, Yekaterina Logvinovna, V. Glushkov Institute of Cybernetics, Academy of Sciences of Ukraine;

Yastrebenetskiy, Mikhail Anasimovich, Central Scientific Research Institute of Complex Automation.

The following were elected to the following posts: V. A. Tarasov, President of the Academy; L. N. Gorev, V. K. Suprunchuk, and I. M. Fedotkin, vice presidents; Ye. B.

Steklogorov, chief scientific secretary. The following were elected to the Presidium of the Academy: B. M. Gerasimov, L. N. Gorev, Yu. V. Kapitonova, T. P. Maryanovich, Ye. B. Steklogorov, V. K. Suprunchuk, V. A. Tarasov, I. M. Fedotkin, and D. A. Chernenko.

The Presidium of the Academy of Computer Sciences and Systems is at the following address in Kiev: 252055, Ul. Vandy Vasilevskoy, 7. Telephone: 271-03-88. The

following can be contacted by telephone: V. A. Tarasov, 266-04-19; I. M. Fedotkin, 441-92-42; V. K. Suprunchuk, 274-01-31; L. N. Gorev, 266-54-47; Ye. B. Steklogorov, 224-73-42; Yu. V. Kapitonov, 266-00-58; and T. P. Maryanovich, 266-14-95.

A report on elections in the Academy of Computer Sciences and Systems of Ukraine also will be reported.

Official Text of Law Protecting Topology of Integrated Microcircuits

937A0021A Moscow ROSSIYSKAYA GAZETA
in Russian 21 Oct 92 p 7

[Law of the Russian Federation "On the Legal Protection of the Topologies of Integrated Microcircuits," Decree of the Supreme Soviet of the Russian Federation "On the Procedure of Putting Into Effect the Law of the Russian Federation 'On the Legal Protection of the Topologies of Integrated Microcircuits,'" and Decree of the Supreme Soviet of the Russian Federation "On the Reconsideration of the Law of the Russian Federation 'On the Legal Protection of the Topologies of Integrated Microcircuits'"]

[Text] The Law of the Russian Federation "On the Legal Protection of the Topologies of Integrated Microcircuits"

Article 1. The Basic Concepts

1. The basic concepts, which are used in this Law, are:

the topology of an integrated microcircuit (hereinafter the topology) is the geometric spatial arrangement of the set of elements of an integrated microcircuit and the couplings between them, which is fixed on a physical medium;

an integrated microcircuit (hereinafter IMC) is a micro-component item of finished or intermediate form, which is intended for the performance of the functions of an electronic circuit, the elements and couplings of which are inseparably formed in the body and (or) on the surface of the material, on the basis of which the item was produced;

use for commercial purposes is selling, renting, or another method of commercial dissemination, as well as the proposal to carry out such actions. Hereinafter in the text of this Law by use there is meant precisely use for commercial purposes, if not stipulated otherwise.

2. By a proprietary in this Law there are meant the author, his heir, as well as any natural or legal person, who has exclusive property rights that were obtained by virtue of the law or a contract.

Article 2. The Relations That Are Regulated by This Law

This Law and the legislative acts of the republics within the Russian Federation, which was passed on its basis, regulate the relations which are connected with the development, legal protection, and use of topologies.

Article 3. The Object and Terms of Legal Protection

1. The legal protection granted by this Law applies only to an original topology.

2. A topology, which was developed as a result of the creative activity of an author, is an original one. A topology is recognized as original until proven otherwise.

3. Legal protection is not granted by this Law to a topology, the set of elements of which is well known to developers and producers of IMCs on the date of its development.

Legal protection is granted to a topology, which consists of elements that are well known to developers and producers of IMCs on the date of its development, only if the set of such elements as a whole satisfies the requirements of point 2 of this article.

The legal protection granted by this Law does not apply to ideas, methods, systems, a technology, or coded information, which may be embodied in a topology.

Article 4. The Authorship of a Topology

1. There is recognized as the author of a topology the natural person, as a result of whose creative activity this topology was developed.

2. If a topology was developed jointly by several natural persons, each of these persons is recognized as the author of such a topology.

3. Natural persons, who did not make a personal creative contribution to the development of a topology, but gave the author only technical, organizational, or material assistance or contributed to the registration of the right to use the topology, are not recognized as authors.

4. The right of authorship of a topology is an inalienable personal right and is permanently protected by law.

Article 5. Property Rights

1. The exclusive right to use this topology at one's own discretion, particularly by the production and distribution of IMCs with such a topology, including the right to prohibit the use of this topology by other persons without the corresponding permission, with the exception of the cases stipulated by Article 8 of this Law, belongs to the author or another proprietary.

2. The procedure of the exercise of the rights, which belong to several authors of a topology or other proprietaries, is specified by a contract between them.

3. The commission of the following acts without the permission of the author or another proprietary is recognized as an infringement of the exclusive right to use a topology:

the copying of a topology as a whole or a part of it by its inclusion in an IMC or in another manner, with the exception of the copying of only that part of it, which is not original;

the application, importing, offering for sale, sale, or other introduction into economic circulation of a topology or an IMC with this topology.

Article 6. The Transfer of Property Rights

1. The property rights to a topology can be transferred entirely or in part to other natural or legal persons under contract.

The contract is concluded in written form and should establish the following essential conditions: the extent and methods of use of the topology, the procedure of the payment and the amount of the fee, the term of validity of the contract.

2. The property rights to a topology are inherited as prescribed by law.

Article 7. The Property Rights to a Topology That Was Developed by Way of the Performance of Official Duties or Under Contract With a Client

1. The property rights to a topology, which was developed by way of the performance of official duties or on the instructions of the employer, belong to the employer, if not otherwise stipulated in the contract between him and the author.

2. The procedure of the payment and the amount of the fee are established by the contract between the author and the employer.

3. The property rights to a topology, which was developed by the author under contract with a client who is not his employer, belong to the client, if not otherwise stipulated by contract.

Article 8. Acts That Are Not Recognized as an Infringement of the Exclusive Right To Use a Topology

1. There are not recognized as an infringement of the exclusive right to use a topology:

the use of legally acquired IMCs or items, which contain such IMCs, provided the person, who is carrying out such use, did not know and should not have known that these IMCs or the items, which contain such IMCs, were produced and are being distributed in violation of the exclusive right to use the topology. After the receipt of the appropriate notification from the proprietary of the topology this person pays adequate compensation for each IMC or each item that contains such an IMC;

use for personal purposes without the derivation of a profit, as well as for the purposes of evaluation, analysis, study, and training;

the distribution of IMCs with a protected topology, which have been legally introduced into economic circulation.

3. The acts, which are indicated in point 3 of Article 5 of this Law and are committed with respect to an identical original topology that was developed independently by another author, are not recognized as an infringement of the exclusive right to use the topology.

Article 9. Registration and Notification

1. The author of a topology or another proprietary can at his own desire directly or through his representative register the topology with the Russian Agency for the Legal Protection of Computer Programs, Databases, and Topologies of Integrated Microcircuits (hereinafter the Agency) by submitting an application for the official registration of the topology of the IMC (hereinafter the application for registration).

2. The submission of an application for registration can be carried out within a period that does not exceed two years from the date of the first use of the topology, if it has occurred.

3. The application for registration should relate to one topology and should contain:

a request for the official registration of the topology of the IMC with an indication of the proprietary, as well as the author, if he did not turn out to be indicated as such, their location (place of residence), and the date of the first use of the topology, if it has occurred;

materials to be deposited, which identify the topology, including an abstract;

a document, which confirms the payment of the registration fee in the established amount or the grounds for exemption from the payment of the registration fee, as well as for the reduction of its amount.

The Agency specifies the other demands on the documents of the application for registration.

4. After the receipt of an application for registration the Agency verifies the presence of the necessary documents and their satisfaction of the requirements set forth in point 3 of this article. In case of a favorable result of the verification the Agency enters the topology in the Register of Topologies of Integrated Microcircuits, issues to the applicant a certificate of the official registration of the topology of the integrated microcircuit, and publishes information about the registered topology in the official bulletin of the Agency.

At the request of the Agency or on his own initiative the applicant has the right prior to the publication of the information in the official bulletin to supplement, specify, and correct the materials of the application.

The procedure of official registration, the forms of the certificates of official registration, and the composition of the data indicated in them are established by the Agency. The Agency also specifies the list of information that is published in the official bulletin.

5. The contract on the complete cession of all property rights to a registered topology is to be registered with the Agency.

Contracts on the transfer of the property rights to a topology can be registered with the Agency by agreement of the parties.

6. The information, which has been entered in the Register of Topologies of Integrated Microcircuits, is considered reliable until proven otherwise.

The applicant bears responsibility for the reliability of the indicated information.

7. Registration fees are collected for the carrying out of actions, which are connected with the official registration of topologies of integrated microcircuits and contracts, and for the publication of information.

The amounts and the dates of the payment of the registration fees, as well as the grounds for exemption from their payment or the reduction of their amounts are established by the Government of the Russian Federation.

8. For the giving of notice of his rights the author of the topology or his cessionary has the right to indicate on the protected topology, as well as on items, which contain such a topology, a notice about this in the form of an emphasized capital letter T ("T" (T), T, T^{*}, or T), the date of the start of the term of effect of the exclusive right to use the topology, and information that makes it possible to identify the proprietary.

Article 10. The Term of Effect of the Exclusive Right To Use a Topology

1. The exclusive right to use a topology is in effect for 10 years.

2. The start of the term of effect of the exclusive right to use a topology is determined according to the earliest of the following dates:

the date of the first use of the topology, by which there is understood the earliest documented date of the introduction into economic circulation somewhere in the world of this topology or an IMC with this topology;

the date of the registration of the topology with the Agency.

3. In the case of the appearance of an identical original topology, which was developed independently by another author, the total term of effect of the exclusive right to use the topology cannot exceed 10 years.

Article 11. The Defense of the Rights to a Topology

1. The author of a topology or another proprietary has the right to demand:

the recognition of rights;

the restoration of the situation, which existed prior to the infringement of the right, and the termination of actions, which infringe the right or create the threat of its infringement;

the compensation of the caused losses, in the amount of which the sum of the revenues, which were illegally received by the offender, is also included;

in addition to the compensation of the caused losses at the discretion of the court or the arbitral tribunal a fine in the amount of 10 percent of the sum, which was awarded by the court in favor of the plaintiff, can be exacted for the revenue of the republic budget of the Russian Federation;

the taking of other steps, which are envisaged by legislative acts and are connected with the defending of their rights.

2. For the defense of his right the author or another proprietary can appeal in accordance with established procedure to a court, an arbitral tribunal, or an arbitration court.

3. The court or the arbitral tribunal can deliver a judgment on the confiscation of illegally produced specimens of IMCs and of items that contain such IMCs, as well as of the materials and equipment, which are used for their production, and on their destruction or their transfer to the revenue of the republic budget of the Russian Federation or to the plaintiff at his request toward the compensation of the losses.

Article 12. The Protection of the Rights to a Topology in Foreign Countries

The author or another proprietary can ask for the legal protection of a topology in foreign countries.

The costs, which are connected with the obtaining of the legal protection of a topology in foreign countries, are borne by the person, who asks for such protection, or by an agreement with him by another natural or legal person.

Article 13. The Rights of Foreign Natural and Legal Persons

Foreign natural and legal persons enjoy the rights, which are stipulated by this Law, on the same basis as natural and legal persons of the Russian Federation by virtue of the international treaties of the Russian Federation or on the basis of the principle of reciprocity.

Article 14. International Treaties

If different rules than those contained in the Law are established by an international treaty of the Russian Federation, the rules of the international treaty are applied.

[Signed] President of the Russian Federation B. Yeltsin
Moscow, the House of Soviets of Russia 23 September
1992 No. 3526-1

On the Procedure of Putting Into Effect the Law of the Russian Federation "On the Legal Protection of the Topologies of Integrated Microcircuits"

The Supreme Soviet of the Russian Federation resolves:

1. To put into effect the Law of the Russian Federation "On the Legal Protection of the Topologies of Integrated Microcircuits" as of the day of publication.

2. The Law of the Russian Federation "On the Legal Protection of the Topologies of Integrated Microcircuits" applies to the relations that are connected with the topologies of integrated microcircuits, the use of which for commercial purposes began after the indicated Law was put into effect.

With respect to the topologies of integrated microcircuits, the use of which for commercial purposes began before the indicated Law was put into effect, it applies to the legal relations that developed after the indicated Law was put into effect, provided these topologies of integrated microcircuits have been registered with the Russian Agency for the Legal Protection of Computer Programs, Databases, and Topologies of Integrated Microcircuits within two years from the date of their first use for commercial purposes.

3. The Government of the Russian Federation:

by 31 December 1992 is to submit in accordance with established procedure for consideration by the Supreme Soviet of the Russian Federation the draft of the Law of the Russian Federation on the Making of Changes and Additions to the RSFSR Civil Code and Other Standard Acts That Are Connected With Questions of the Legal Protection of the Topologies of Integrated Microcircuits;

by 31 December 1992 is to ensure the passage by the Government of the Russian Federation of standard laws in conformity with the indicated Law;

is to envisage in the republic budget of the Russian Federation, starting in 1992, all the necessary items of expenditures in conformity with the indicated Law.

4. The Committee of the Supreme Soviet of the Russian Federation for Science and Public Education with the participation of the State Patent Office of the Russian Federation is to generalize the practical experience of applying the indicated Law and to report the results to the Supreme Soviet of the Russian Federation by 1 January 1994.

[Signed] Chairman of the Supreme Soviet of the Russian Federation R.I. Khasbulatov Moscow, The House of Soviets of Russia 23 September 1992 No. 3527-1

Decree of the Supreme Soviet of the Russian Federation "On the Reconsideration of the Law of the Russian Federation 'On the Legal Protection of the Topologies of Integrated Microcircuits'"

Having examined the Law of the Russian Federation "On the Legal Protection of the Topologies of Integrated Microcircuits," which was returned by the President of the Russian Federation, the Supreme Soviet of the Russian Federation resolves:

1. In conformity with the second part of Article 117 of the Constitution (Fundamental Law) of the Russian Federation to pass again the Law of the Russian Federation "On the Legal Protection of the Topologies of Integrated Microcircuits" with the proposed amendment of the text of Article 2 of the indicated Law.

2. To make the appropriate changes in point 3 of the decree of the Supreme Soviet of the Russian Federation of 14 May 1992, "On the Procedure of Putting Into Effect the Law of the Russian Federation 'On the Legal Protection of the Topologies of Integrated Microcircuits'."

[Signed] Chairman of the Supreme Soviet of the Russian Federation R.I. Khasbulatov Moscow, The House of Soviets of Russia 23 September 1992 No. 3528-1

Law On Scientific Intellectual Property

935D0082A Ashgabat TURKMENSKAYA ISKRA
in Russian 7 Oct 92 p 3

[Article: "Turkmenistan Law on Scientific Intellectual Property"]

[Text] This law, in conformity with the Turkmenistan Law on Property in Turkmenistan, regulates the social relations which arise in the area of scientific and technical activities during the development and use of items of scientific intellectual property as one of the types of intellectual property.

Scientific intellectual property is that property which is based on the results of scientific research, design work, investigative work, experimental design work and experimental manufacturing operations (hereinafter referred to as "scientific work").

Article 1. Legislation of Turkmenistan on Scientific Intellectual Property

1. Relations arising in connection with items of scientific intellectual property shall be regulated by this law, by other legislative acts of Turkmenistan and by decrees of the Cabinet of Ministers, which are issued in conformity with them.

2. The statutes of this law shall apply to relations of enterprises, organizations, associations and joint ventures with foreign investments, which have been established in Turkmenistan, as well as the citizens of Turkmenistan.

3. The state administrative organs of Turkmenistan, within the limits of established jurisdiction and in conformity with this law, may issue acts regulating relations which arise during the exercise of the right of scientific intellectual property.

4. If, by an international agreement of Turkmenistan, there shall be established rules other than those contained in existing legislation which regulates the relations of scientific intellectual property, then the rules of the international agreement shall apply.

Article 2. Items and Forms of Scientific Intellectual Property

1. Scientific Intellectual Property shall include the intermediate, final and incidental results of scientific work, which are expressed in objectified forms.

2. Results of an intermediate nature shall include items provided for by a contract or an official or special assignment, which are initiated or derived during scientific work, but which are not the result of the work.

3. Results of a final nature shall include items initiated or derived as the result of scientific work, as provided for by a contract or an official or special assignment.

4. Results of an incidental nature shall include items initiated or derived during scientific work conducted according to a contract or an official or special assignment, but not provided for by a contract or an official or special assignment, and which are suitable for use exclusively for purposes which differ from those which are the object of the contract or official or special assignment.

5. Items of scientific intellectual property may be represented in any form and presented on any media known at the present time or which shall be developed in the future.

Article 3. The Right of Scientific Intellectual Property and the Bases for its Emergence

1. The right of scientific intellectual property consists of the opportunity, recognized and protected by law, of the owner, at his own discretion, to own, to use and to dispose of the variously objectified results of scientific work. No one may use them without the permission of the owner.

2. In exceptional instances, the Cabinet of Ministers may authorize the limited use of scientific intellectual property belonging to an owner by other legal persons.

3. The exercise of the right of scientific intellectual property should serve humane goals, should not violate the rights and legally protected interests of the state, of citizens, of enterprises, of institutions and of organizations and should not cause damage to the environment.

4. The right of scientific intellectual property emerges on the basis of the following:

—the derivation and use of variously objectified intermediate and final results of scientific work, the organization and conducting of which were the object of a special understanding of the parties (a contract or agreement);

—the derivation in objectified forms of the results of scientific work during the conducting of independent scientific work by individual citizens or their collectives (associations), including during the exercise by them of entrepreneurial activities;

—and the derivation in objectified forms of incidental results of scientific work, as provided for by section 4 of Article 2 of this law.

Article 4. The Subjects of the Right of Scientific Intellectual Property

1. The subjects of the right of scientific intellectual property may be natural and legal persons of Turkmenistan and of foreign states and international organizations.

2. The right to be an owner of scientific intellectual property shall belong to the developer (author or initiator) of an item of property, i.e., to the citizen or collective who has participated directly in the initiation of an item of scientific intellectual property.

3. The right to be an owner of scientific intellectual property shall belong to the employer (legal person: a scientific institution, an organization, an enterprise, an educational institution, a state organ, or an administrative organ), if the initiation (development) of the item of scientific intellectual property is associated with work based on a contract or special assignment (based on the plans of a scientific institution or an organization) and, during the initiation (development) of the item of scientific intellectual property, use is made of materials, assets, equipment and other resources which are the property (under the economic management or operational control) of the employer with whom the developer (initiator) of an item of scientific intellectual property has a working relationship or has signed a contract.

4. The owner of items of scientific intellectual property shall be the employer (legal person: a scientific institution, an organization, an enterprise, an educational institution, a state organ, or an administrative organ), if there has been signed between it and its subdivision and the developer an agreement or contract, by which the developer grants to the employer all rights to the scientific intellectual property without any kinds of restrictions, to the fullest extent and for the entire period of its validity. At the same time, the conveyance is accompanied by obligations of the employer for ensuring the conditions necessary for the effective creative work of the developer and for the payment to him of compensation in the event of the initiation and realization of scientific intellectual property.

5. The owner of items of scientific intellectual property may be simultaneously the developer (initiator) of the scientific intellectual property and the employer (a scientific institution or other organization) with whom the developer has a working relationship and is performing scientific research and other work by way of an official or special assignment (based on a work plan), if no other

agreement has been reached between them with respect to the ownership of items of scientific intellectual property.

In this instance, equally with the employer, the developer reserves for himself the right to use the initiated scientific intellectual property or to grant licenses to third parties.

6. The owner of items of scientific intellectual property which have arisen in a scientific institution or an organization during the performance of scientific research and experimental design work [research and development] shall be the developer (initiator) of an item of scientific intellectual property having a working relationship with the employer, to whom the employer, by means of an internal licensing or other agreement, under mutually advantageous conditions, shall have conveyed his own right of ownership of the item of scientific intellectual property.

7. The owner of items of scientific intellectual property, which have been obtained by independent initiative in the conducting of scientific work, shall be the citizens or their collectives who have performed this work.

8. The right of scientific intellectual property shall belong to the developer (initiator), if the initiation (development) of the item of intellectual property is not associated with work based on a contract or official or special assignment (based on the plans of a scientific organization) and, during the initiation (development) of the item of scientific intellectual property, no use is made of materials, assets, equipment and other resources which are the property (under the economic management or operational control) of the enterprise, scientific institution, organization or educational institution with which the developer (initiator) of the item of scientific intellectual property has a working relationship or has signed a contract.

9. The owner of incidental items of scientific intellectual property shall be the citizens or legal persons who have initiated or derived these results.

The owner of incidental items of scientific intellectual property shall be obligated to turn to the party which shall have signed a contract or commissioned by way of an official or special assignment the conducting of scientific work with a proposal for the use of these items which should become the object of a separate contract. In the event of a refusal to an owner or a failure to reach an agreement, the owner of incidental items of scientific intellectual property shall have the right to use them independently.

10. If an inseparable part of a new item of scientific intellectual property shall be an item which belongs to another owner, the procedure for the ownership, use and disposition of the new item of scientific intellectual property shall be determined by an agreement of the owners.

Article 5. The Contract as the Basis for the Emergence of the Legal Protection of Scientific Intellectual Property

1. The right of scientific intellectual property may emerge on the basis of a contract (agreement) between a customer and an executor with regard to the carrying out of scientific work and the derivation of specified scientific results.

2. The contract should specify the legal status of scientific intellectual property for the intermediate, final and incidental results of this work, the sources of financing and of material and technical support, the owner of the results of this work, the instances and conditions for patenting these results and ensuring confidentiality, the initiation or use of a single item of scientific intellectual property or their aggregate, the conditions for the conveyance (transfer) of the right of scientific intellectual property to other persons, the liability for violations of this right, the distribution of revenues derived from the use of this right, as well as other conditions which arise from the object of the contract.

3. In an instance where the owner of the results of the scientific work shall be a state institution, organization or enterprise, and these results are suitable for patenting, the party which is the executor of the contract (the contracting party) shall be obligated, if not otherwise provided for by the contract, to prepare and to make, using the established procedure and at its own expense, a request for the conducting of a patent examination to determine their suitability for a patent.

Article 6. Labor and Collective Agreements as the Bases for the Emergence of the Legal Protection of Scientific Intellectual Property

1. The right of scientific intellectual property may emerge on the basis of a labor contract (agreement) with the conducting of scientific work by way of an official or special assignment (based on the work plans) of a scientific institution or organization.

When a labor contract is being drawn up, in conformity with which scientific work is to be carried out, it is necessary to include in it the requirements which ensue from this law and are aimed at protecting the right of scientific intellectual property, and it is also necessary to make provision for property or other liability for the violator of this right.

2. The management of an enterprise, organization or institution, in changing existing labor conditions specified by a labor contract in which measures have not been provided for protecting scientific intellectual property, shall have the right to include in it the requirements which ensue from this law and are aimed at the protection of scientific intellectual property, as well as those which make provision for liability for the violator of this right.

In the event of a refusal by the developer to continue working under the indicated substantial change in labor

conditions, the labor contract with him shall be cancelled using the established procedure.

3. The right of scientific intellectual property may emerge on the basis of a collective agreement between a scientific institution or other customer organization and a collective of executors who may or may not have a working relationship with the customer.

The collective agreement shall specify the legal status of property of the derived scientific results, the conditions and the procedure for their use and other essential conditions for the organization and conducting of scientific work.

Article 7. The Rights of the Developer (Initiator) of an Item of Scientific Intellectual Property

1. The developer (initiator) of an item of scientific intellectual property shall have the right to compensation in conformity with a contract or labor or collective agreement, which right shall pass on by right of inheritance.

2. The contract or labor or collective agreement may make provision for the right of the developer (initiator) of an item of scientific intellectual property to a portion of the profit (revenue) derived by the owner from the use of this item.

Article 8. The Use of Scientific Intellectual Property

1. Revenues, including foreign exchange earnings, derived from the use in economic activities, including entrepreneurial ones, of items of scientific intellectual property shall belong to the owner, with the exception of the developer's portion stipulated by a contract or a labor or other agreement.

2. The right of scientific intellectual property for specific items may be transferred as a contribution to the formation of a charter fund (capital) of a joint-stock company, joint venture, business partnership and other enterprises, organizations and institutions or their unions.

3. Enterprises, organizations and institutions, based on a contract with an owner, shall have the right to carry out intermediate operations for the use or compensated transfer to their own contracting parties of items of scientific intellectual property obtained from the owner.

4. Legal persons and citizens may be limited in the right to dispose of items of scientific intellectual property by considerations of state security or the ensuring of the defense of the country. The list of such items and the procedure for limiting rights shall be established by the Turkmenistan Cabinet of Ministers.

5. Citizens and legal persons who, prior to the registration of items of scientific intellectual property and independently of the owner and author of scientific intellectual property, have initiated and used an identical item or have made the necessary preparations for its

use, shall retain the right to subsequent uncompensated use without expansion of its extent (i.e., the "right of prior use").

Article 9. The Conveyance (Transfer) of the Right of Scientific Intellectual Property

1. The owner shall have the right to convey (transfer) his right of scientific intellectual property fully or partially to other citizens or legal persons.

2. Conveyance of the right may be implemented by the owner on an uncompensated basis or for payment, as well as under conditions of mutual advantage which shall provide a suitable portion of the revenues from the use of the conveyed right to the contracting party.

[3.] The contract on conveyance of the right may stipulate the right of the owner to receive a suitable portion of the revenues from the profit actually derived by the contracting party through the use of the conveyed right, as well as the method and procedure for calculating this profit and the portion of the revenues and the methods for calculating and checking the figures.

4. Conveyance of the right may be of an exclusive nature. In this instance, the person to whom the right has been conveyed may, within the limits of this conveyance, use the rights transferred to him without the participation of other persons, including the owner himself, and, if not otherwise stipulated in the contract, give nonexclusive permits to other persons for the use of the conveyed right.

Conveyance of the right may be of an irrevocable nature. In this instance, the owner may not revoke the permit (license) for the use of scientific intellectual property, which he has transferred to another person.

Conveyance of the right of scientific intellectual property should be drawn up in writing in the form of a contract and, in instances specified by law, on the basis of a permit obtained using the established procedure.

Article 10. The Obligation of Maintaining Confidentiality

1. The parties, when entering into a contract or labor or collective agreement for the conducting of scientific work or for the use of its results, may establish a mutual obligation to maintain in secrecy and not to divulge the results of this work, information about the processes for obtaining them or marketing, financial, business or other information associated with the object and conditions of the contract, which is classified as confidential (hereinafter referred to as "confidential information").

2. The divulgence of confidential information shall be a violation of the right of scientific intellectual property and shall entail for the violator property or other liability as established by law or contract.

3. Exceptions to these rules shall be permitted only with respect to information which:

- was previously, prior to the signing of the contract, known to the parties;
- was obtained from a third party without an obligation to maintain its confidentiality;
- or involves other instances established by legislation or contract.

4. In instances provided for by legislation of Turkmenistan or a contract (labor or other agreement), the obligation of maintaining confidentiality may continue even after the termination of a contract or working relationship over the course of one year, if not otherwise provided for by the contract.

5. The owner or the person to whom the right of scientific intellectual property has been conveyed (transferred) may, using the procedure established by law, demand property compensation for the damage caused to him by the violation of the rules for maintaining confidentiality.

6. Citizens and legal persons shall be obligated to maintain confidentiality with respect to items of scientific intellectual property, which have been received by them for examination or review.

Article 11. Protection of the Right of Scientific Intellectual Property

1. The protection of the right of scientific intellectual property shall be accomplished by judicial procedure. Also resolved during the examination of disputes shall be all matters of compensation to the owner to the full extent of the losses caused.

2. The termination of activities which violate the rights of the owner shall be accomplished using the procedure established by law.

3. The owner may demand the elimination of all violations of his right of scientific intellectual property even in that instance when the violations were not even associated with depriving the owner of the right to own, to use and to dispose of an item of scientific intellectual property.

4. When the owner has been caused moral harm, the guilty party shall be obligated to compensate him, even if material damage has not been proven. In order to estimate the harm and its property compensation, the circumstances and severity of the violation and the degree of unlawful use of the right of scientific intellectual property shall be investigated.

Article 12. Violation of the Right of Scientific Intellectual Property

Losses caused by citizens and legal persons as a result of the issuing of unlawful acts or the commission of unlawful actions which violate the rights of the owner and other persons with respect to the ownership, use or disposition of items of scientific intellectual property,

shall be subject to compensation to the fullest extent at the expense of assets at the disposal of the corresponding organ of state control, local organ of state power or the citizen responsible for inflicting such damage.

Article 13. Scientific Intellectual Property of Joint Ventures and Foreign Citizens, Organizations and States

1. Joint ventures in which foreign legal and natural persons participate and which have been established on the territory of Turkmenistan may own, use and dispose of items of scientific intellectual property.

2. The statutes of this law shall apply also to the scientific intellectual property of foreign citizens and persons without citizenship, which is on the territory of Turkmenistan.

3. Foreign states and international organizations may have on the territory of Turkmenistan the right of scientific intellectual property in instances and using the procedure established by international agreements and legislative acts of Turkmenistan.

4. The list of items of scientific intellectual property, originated on the territory of Turkmenistan and not subject to export without a license, shall be specified by the Turkmenistan Cabinet of Ministers.

Article 14. Period of Validity of the Right of Scientific Intellectual Property

1. Unless otherwise specified by a contract or labor or other agreement, the period of validity of a right of scientific intellectual property for specific items shall amount to 25 years, beginning on the first of January of the year following the year in which it shall have been derived and registered.

2. In the event of the reorganization or liquidation of an owner's organization or the death of a citizen who is the owner of scientific intellectual property, this right shall pass to their legal successors.

Article 15. The Registration and Recording of Items of Scientific Intellectual Property

The organ which implements the state registration and recording of items of scientific intellectual property shall conduct the collection and processing of information about on-going and finished scientific work in Turkmenistan and shall establish a national scientific intellectual property database.

[Signed] S. Niyazov, president of Turkmenistan
Ashgabat

30 September, 1992

Progress in Protecting Intellectual Property Rights Reviewed

937A0023A Moscow DELOVOY MIR in Russian
3 Oct 92 p 10

[Article by Sergey Protasov under the rubric "Our Guest": "Has the Ship of Intellectual Piracy Sprung a Leak?"—first paragraph is DELOVOY MIR introduction]

[Text] In the area of the protection of rights to intellectual property Russia inherited from the USSR the reputation of a "pirate" country. However, there is appearing for it, it seems, a change to overcome the bad heredity.

The history of our "achievements" in the area of the protection of intellectual property comes to only 19 years. Before 1973 none of the leaders of the USSR took it into his head that it is necessary to pay for the publication of the books of Stefan Zweig or for the use of German developments in the area of automotive design when developing the famous Soviet "MK" motorcycle. However, with the start of the short era of "detente" and the gradual development of ties with the outside world the party leaders realized the need to observe if only some norms of international law. In 1973 the USSR became a party to the Universal Geneva Copyright Convention, which was signed by the majority of countries in 1952. In accordance with the convention the USSR was obliged to ensure the observance of the norms of copyright law on its territory.

Thus the All-Union Copyright Agency [VAAP] appeared. It became a monopoly supervisory body in this area, but at the same time a tool of the shameless robbing of domestic authors who were published abroad. The "agency fee," which was collected by the VAAP, came to up to 95 percent.

In spite of the grumbling and dislike of the Soviet intelligentsia, the VAAP was still able to do something for the observance of the rights of foreign authors. They began to pay the literary people who were published in the USSR. Under the conditions of strict censorship it was easy to carry out the legal and financial monitoring of the purchase and rental of foreign movies and television broadcasts. In turn, money began to flow into the USSR from all corners of the civilized world for, for example, the performance of the music of Prokofyev, Shostakovich, and Khachaturyan, for the showing of the movies of Tarkovskiy, and even for obviously dissident things, which were published abroad, of such writers as Fazil Iskander.

The Era of Superscandals

With the start of perestroika an entire cascade of cultural information from the West, which was previously held in check by censorship and of which, having the sluggish VAAP staff, it was impossible to keep track, came down upon the country. In the noise of the political fights of the first years of perestroika "the creak of old

pirate ships and the clanging of boarding rigging" began to come through more and more clearly, but hardly anyone directed attention to them. The VAAP, which was established for robbing its own people, was more concerned about the retention of these functions than about the protection of foreigners. The era of far-reaching scandals began.

In 1990 Andrey Tropillo—director of the Leningrad Branch of the Melodiya firm—began the release of "rock-and-roll classics." Tens of records with recordings of Led Zeppelin, Credence, and The Rolling Stones and the complete collection of The Beatles appeared—of course, without any permission of the holders of the rights.

Imperfect Soviet legislation manages very easily: On the records it is written that all "the recordings were made from radio broadcasts" or "received from private collections." Over the Moscow channel of Central Television they showed several American box-office hit movies, such as "Predator" or "9 1/2 Weeks," cutting only the beginning and final credits and calling this "fragments." In the center of Moscow—in the Old Arbat—for 5 rubles they take your picture alongside the cartoon Mickey Mouse or Donald Duck at full height. Incidentally, the indignant statement on television of a Walt Disney Company representative, which was aimed against all types of "piracy," was perceived at that time by the Soviet audience as a joke. Here, they say, because of some mouse he flew off the handle so!

However, the matter was far more serious, and the clouds continued to thicken.

The boycott in 1991 of the Moscow International Movie Festival by American cinematographers was the most alarming signal. The American Association of Movie Exporters stated that it did not intend to tolerate any longer the gross violations of copyrights and called upon its members to boycott the Moscow Movie Festival. At the end of the winter of 1991-1992 the new Russian authorities nevertheless decided to begin the reform of the system of the protection of the rights of authors. The VAAP was abolished, while by an edict of the president the Russian Intellectual Property Agency [RAIS] was established in place of it.

Anarchy: They Are Stealing Everything!

With the elimination of the VAAP and the establishment—for the present only on paper—of the RAIS there began, however strange, "the wonderful era of piracy." The point is that they established the RAIS on 24 February 1992, but the president signed the statute on its activity only on 15 July. Between these two dates there is diarchy, or rather anarchy, which is traditional for Russian revolutions. The head of the VAAP, former intelligence agent Chetverikov, rather quickly reregistered his organization as a public organization and for a long time did not want to give the building and archives to the legal successors.

The director of the RAIS—Mikhail Fedotov, former deputy minister of the press—and his team engaged in earnest in the fight against the impostor. The State Committee for Cinematography, which did a poor job of controlling the movie market, was also eliminated, its legal successor—the Russian Committee for Cinematography—completely legitimized its activity at the end of the summer. But until then amazing things happened. In Moscow and other large centers they began to show extensively the biggest American box-office hit movies of recent years: "Terminator," "Highlander," "9 ½ Weeks," "Two Moon Junction," and others. Jack Valentine, president of the already mentioned Association of American Movie Exporters, sent to the Kremlin angry letters and a large number of his own emissaries, but nothing changed. Having tried to institute proceedings in court on a specific case with the illegal rental of the famous movie hit "Pretty Woman," the Association of American Movie Exporters found that there was practically no hope for success: First, it is unknown in accordance with what laws to litigate, second, it is unknown with whom to litigate, and, third, in general it proved difficult to get a hearing of a civil case: In the courts there was a catastrophic shortage of people's assessors. Michael Solton—a lawyer from the American law office Steptoe and Johnson, who handled the "Pretty Woman" case—considers, for example, that as long as in Russia there is no copyright legislation which corresponds to generally accepted world norms, it is practically useless to undertake such cases. During the summer the majority of specialists in law were inclined to such pessimism, while, as is known, wherever the law retreats, what in Russian criminal jargon is called "limitlessness" [bespredel] begins.

According to some estimates, during the spring and first half of the summer in Moscow, for example, more than 60 American movies, many of which were brought in from Poland or Romania from suppliers who did not have any rights to these products, were shown at movie theaters.

An incredible number of cable television companies, which did not request from anyone permission to show no matter what, appeared.

At that time an epoch-making scandal in the area of book publishing broke out. The point is that the Khudozhestvennaya literatura Publishing House was the only publishing house which obtained from the Margaret Mitchell Foundation the rights to the publication of the novel *Gone With the Wind*. While the best specialists were working on the translation, another publishing house, with the mysterious name "Nik. L.," dumped on the market 500,000 copies of *Gone with the Wind* and on the wave of the advertisement made by the Khudozhestvennaya literatura Publishing House took in the large sum of 20 million rubles. "Nik. L." was a limited liability company and dissolved itself immediately after the sale of the printing. However, later other publishing houses, which this time did not even indicate in the book the publication data, also repeated the same "pirate" trick.

After such "demarches" there was nothing left for Georgiy Andzhaparidze, director of the Khudozhestvennaya literatura Publishing House, to do but merely to give up as a bad job and to abandon the project.

Can We Not Afford Being Civilized?

And still by the end of the summer the situation had begun to change for the better. In the area of the protection of intellectual property laws on the protection of computer programs, the topology of integrated microcircuits, and trademarks and a law on patents were passed. The RAIS began to deploy in combat formations and proclaimed an offensive against "pirates." The Russian Committee for Cinematography declared as mandatory the obtaining by movie theaters of rental certificates for movies, while it began to threaten violators with the loss of their operating license and fines.

The parliament set to work in earnest on the fulfillment of one of points of the Russian-American trade agreement: to bring domestic legislation in line with world norms with regard to intellectual property and in 1993 to become a party to the Bern Convention, which is more strict than the Geneva Convention.

Two commissions of parliament in collaboration with specialists of the RAIS drew up a draft law, which is close to western analogs and provides for severe liability for the violation of the rights of an author or a holder of rights.

It is surprising that opposition to the plans of the passage of such a law and the joining by Russian of the Bern Convention was found in the most unexpected quarter—on the part of a portion of the creative and scientific intelligentsia. In the opinion of many people, the main argument against the law is our poverty and at the same time the traditional longing for world cultural values. The supporters of such a point of view claim that the indicated convention, which provides for payment to the author for 50 years after his death and other strict measures, will lower on our borders another iron curtain—a cultural one.

Many people indicate the already commenced process of the curtailment of the video business, which, although a "pirate" business, still for a long time was our only window to the world of European and American cinema. Aleksandr Kravchuk—head of the Alt Video Association, one of the largest in Moscow—says that "I would be happy to pay for the use of a copyright, but given the 70-percent taxation of the video business the price for a cassette with a movie as it is is nearly unaffordable for the ordinary customer, and if the expenditures on the copyright were added, I would have to go out of business." The same sentiments reign both among the owners of cable networks and among leading radio programs—"there will be nothing to listen to."

The logic is simple: We will not be able to pay much and, thus, we will be able to afford only a second-rate commodity, which will entail the cultural degradation of the nation.

However, does the habit of picking the pocket of the same world culture, which we love, not lead to degradation?

In any event "the wonderful era of piracy" is coming to an end, the invisible "Jolly Roger," which fluttered above us together with the tricolor Russian flag, is gradually dissolving in the past, while the former filibusters, sighing, are already opening the chests with the stolen gold, for in the end one has to pay for everything in life.

Report on FRG's Riesenhuber Trip to Russia, Ukraine

927A0293A Moscow RADIKAL in Russian No 31 (88),
Aug 92 p 1

[Article: "Science Gains"—first paragraphs is RADIKAL introduction]

[Text] Last week FRG Minister for Research and Technology Heinz Riesenhuber visited Russia and Ukraine. The discussion of a national and international program of aid to scientists of the countries of the Commonwealth was the basic goal of his trip. In Russia, which accounts for the lion's share of the total amount of proposed aid, the minister met with his colleague, Minister of Science Boris Saltykov, with President of the Russian Space Agency Yuriy Koptev, and with President of the Russian Academy of Sciences Yuriy Osipov.

The total amount of aid in 1993 should come to 30 million marks [DM]. For the most part it is proposed to spend these assets on the support of individual research groups, which are working within the framework of specific programs, and as well as on the improvement of the infrastructure of science.

In the opinion of the West German initiators of the program, the planned projects will make it possible to give direct financial support to more than 1,000 of our scientists, and better working conditions will be made available to more than 4,000 more.

In the materials, which were disseminated by the press service of the FRG minister during the official visit, the priority interests of the German side with respect to science of the countries of the CIS are clearly indicated. First of all these are space research, the possibilities of the use of nuclear power for peaceful purposes, materials science, and medicine.

The specific addressees of cooperation and aid were indicated as examples. Among them is the Institute of Applied Physics in Nizhniy Novgorod, the associates of which will make available the gyrotrons, which were developed by them, for the conducting of joint experiments on nuclear fusion in Garching. It is envisaged to allocate already this year DM100,000 for the implementation of this project. Approximately the same amount will also be spent on the base financing of the institute in Garching.

This year it is proposed to allocated DM800,000 from the assets of the federal budget for joint research in the area of oceanography, marine biology, and geology—157 Russian scientists will take part in it.

Bessy GmbH is conducting talks with the Institute of Nuclear Physics imeni Budker in Novosibirsk on the possibilities of cooperation in the building of the new Bessy II electron synchrotron. Within the framework of cooperation it is envisaged to purchase in Russia specific components of equipment, on which Bessy GmbH's own

assets, which have been specially allocated for the construction of Bessy II, will be spent.

During the stay in Moscow the German side turned over to Russia a lot of 50 used computers of German firms. Moreover, one of the computer enterprises of Germany plans to turn over another 500 computers, while a computer, which is intended for research in the area of the safety of reactors, will be turned over to the Kurchatov Institute in Moscow.

It is also of no small importance that Germany is prepared to make available to the Russian Academy of Sciences western specialized journals and to make easier the access of Russian scientists to professional information obtained in the West.

Both research institutes and industrial giants and small and medium-sized enterprises are prepared to give aid to our science. The forms of aid are also very diverse. Thus, 50 scientists from the countries of the CIS will receive work at the famous Max Planck Institute in Halle, where they will deal with questions of electron microscopy, the Society for Questions of Reactor Safety, which is located in Koln, is inviting approximately the same number of our scientists.

In the present difficult situation the problem of scientific exchanges has assumed particular importance. This year DM1 million from the budget of ministerial research and technology of the FRG should be allocated for this solution.

Report on Japanese Program To Aid Russian Science

927A0293B Moscow RADIKAL in Russian No 31 (88),
Aug 92 p 9

[Article]

[Text] The Ministry of International Trade and Industry of Japan intends to establish the Government Fund for the Promotion of the Rendering of Technological Assistance to Russia. The financing of technological assistance to the economic reforms in Russia will be among the tasks of the fund. The assistance assumes, in particular, the training of specialists in the area of the management and organization of production and the financing of measures on the assurance of the safety of nuclear power plants and the development of small and medium-sized enterprises.

The amount of the fund being established is about \$80 million. The de facto and de jure establishment of the fund should be completed by the visit to Tokyo by President of Russia Boris Yeltsin.

Central Aerohydrodynamics Institute to Participate in Hermes Project

92740293C Moscow RADIKAL in Russian No 31 (88), Aug 92 p 9

[Article (BIZNES-TASS): "The Central Aerohydrodynamics Institute Will Work on the Development of a Space Plane"]

[Text] A contract on the development of the Hermes space plane was been signed between the Central Aerohydrodynamics Institute (TsAGI) and the European consortium Euro-Hermes Space.

The signing of the contract, which was held on 19 August, is a result of nearly two years of work of the head scientific and technical institute of the aviation industry. The essence of the agreement of the parties lies in the making of a critical analysis of the strategy adopted by

the parties of the adaptation of the durability of the space plane by specialists of the TsAGI, as well as in the evaluation of the use of the extensive experimental capabilities of the TsAGI in developing the Hermes.

The development of a space plane remains a strategic direction of the work of the aerospace industry of the European Community. However, the implementation of such programs requires enormous financial expenditures. The experience of colleagues from the countries of the CIS, which was gained during the development of Buran, could reduce them to some degree.

The contract is valued at 250,000 European Currency Units. During the signing of the documents German Zayganov, director of the TsAGI, expressed confidence that this agreement is just the first step taken by Euro-Hermes Space in the direction of cooperation with the TsAGI in the implementation of the Hermes project.

Uzbek Academy of Sciences President Interviewed on Independence

937A0012A Tashkent PRAVDA VOSTOKA in Russian
27 Aug 92 p 4

[Interview with Makhmud Salakhitdinovich Salakhitdinov, president of the Academy of Sciences of the Republic of Uzbekistan, by UZA Correspondent B. Abdullayev; date and place not given: "Science Does Not Have Boundaries.... An Interview with M.S. Salakhitdinov, President of the Academy of Sciences of the Republic of Uzbekistan"]

[Text] [Abdullayev] Makhmud Salakhitdinovich, what has changed in the life of the academy with the achievement of the independence of Uzbekistan?

[Salakhitdinov] First, in all areas of our activity we have acquired the right to work independently. Previously we could not do anything without having gotten agreement on our actions with the center, with the Academy of Sciences of the former USSR, and through it with the State Committee for Science and Technology. We had to obtain the permission of Moscow even in those cases, when it was necessary to settle questions that concerned only our republic. Meanwhile we have many world-famous scientists, who have established a fine scientific school and have training many talented students.

After I became president, I had to turn to Moscow repeatedly. I substantiated the advisability of opening in Uzbekistan doctoral programs in 25 directions. However, they permitted us to open only six or seven doctoral programs. With the acquisition of the independence of the republic we obtained the opportunity to decide ourselves what institutes and doctoral programs we are to open.

Another example. It is well known that scientific workers receive a wage in accordance with the category of the institutes, at which they work. We had 17 institutes of the second category and two or three institutes of the third category. With the passage of time both the quality of their work and the level increased. Thus, it is necessary to revise this level. We repeatedly addressed to the center the request to settle this question, but were unable to obtain any positive response. Now we ourselves are solving this problem.

[Abdullayev] It turns out that not only the USSR, but also its systems, including integration in science, disintegrated.

[Salakhitdinov] In science there are no boundaries. The basic fields are of worldwide importance. It is necessary to seek means of solving such problems in accordance with the scientific potential of each country. We are strengthening our ties with scientists of foreign countries and the republics of the Commonwealth of Independent States. In our republic, as in any separate independent republic, it is impossible to develop science at the world level in isolation.

Availing myself of the opportunity, I would like to note that the President of the Republic of Uzbekistan is well-informed about the problems of science and understands them thoroughly. While working in the State Planning Committee he entered into close relations with our academy.

Not by chance has our President promulgated a number of edicts, which are aimed at the solution of specific problems of science, its social protection, and the material support of scientists. As a result the conditions for the preservation of the existing potential were created. Since January 1992 the wage of scientists has been increased by threefold. Particularly great attention is being devoted to young personnel, their daily life, their living conditions, and their material status. We are doing everything possible for this. The new edict of the President on the state support of science and the development of innovation activity is affording additional prospects in this respect. Henceforth we are exempt from the burdensome additional 30-percent tax. While this is creating a reliable foundation for the accomplishment of the posed tasks and for the social protection of scientific workers.

Within my memory there has not been a case of the allocation of currency for our academy and for scientific research institutes. Recently in accordance with a decree of the Cabinet of Ministers \$1.7 million was allotted to three of our scientific research institutes for the solution of urgent problems.

The problem of establishing ties with foreign scientists was also solved. During the years of so-called stagnation owing to the center only at times did they include any of our scientists in scientific delegations which were being sent abroad. Now we ourselves are sending our own delegations abroad. I have been to many countries as a member of delegations headed by our President and felt everywhere increasing attention to and respect for Uzbekistan and its people.

Last year alone 63 scientists from Uzbekistan were on official business trips to 24 foreign countries, with a length of stay of seven days to eight months. This year 152 people have made trips abroad. Many young scientists during 1991-1992 were sent to scientific schools and doctoral programs of America, Canada, Germany, and Belgium. Several of these scientific institutions let our envoys stay to do practical studies for another two to three years at their own expense. It is possible to call the research, which our scientists are conducting with specialists of the United States, France, Germany, Italy, the PRC, and India, very fruitful. An agreement has been signed with the University of Washington on the training of personnel and the conducting of joint scientific research. The work, which physicists of Uzbekistan are conducting in collaboration with colleagues from Germany and Canada and French archeologists are conducting jointly with Uzbek scientists, also merits attention.

The research, which the academy is conducting in the area of materials science and radioactive isotopes, as well as on the development of new types of radioimmune sets and in a number of directions of physics and mathematics, the chemistry of plant substances, the study of the scientific and cultural heritage of the East and ancient and medieval cities of Central Asia, has been rated highly both in the CIS and in foreign countries.

[Abdullayev] What impact does each budget ruble, which is spent on the development of science, yield under present conditions?

[Salakhitdinov] Only basic research and applied scientific research, which are aimed at the development of the national economy of the republic, are provided with assets through the State Budget. At the same time, in spite of the budget deficit, the President and the government of the republic are doing everything possible in order to provide with assets the accomplishment of the tasks which face us. It should also be said that the impact of each ruble, which has been spent on science, at present comes to not less than 2 rubles.

The results of our research are being used in the national economy. Take, for example, the Solntse Complex, which was established in Parkent over a period of several years. They began to build this structure back during the life of our late scientist S. Azimov and put it into operation only a year after his death. And now they are obtaining there pure ceramic materials, in the composition of which metals are absent. They are being used successfully in the national economy, first of all in the field of medicine, particularly in the production of sterilizers. A new technology of drying fruits and vegetables has been developed.

At the Institute of Chemistry of Plant Substances, which was organized by Academician Sabir Yunosov, methods

of producing sugar from "stevia" are being developed. The sugar from this plant is two-hundredfold sweeter than the sugar obtained from beets. In Kibray they have allotted two hectares of land for its growing. In Chinazskiy Rayon there is also a field where it is being cultivated.

In short, it is possible to cite many examples of the effective investment of assets in science. While in the future, I am certain, we will be able to obtain from research an even greater impact.

[Abdullayev] What would you like to wish out intelligentsia on the even of the forthcoming national holiday?

[Salakhitdinov] We are going through a complex and difficult period of our history. If we work together and vigorously, these hard times will pass quickly. You know that results are usually summarized at celebrations and on holidays. Here we have spoken about the work which was done in the area of science during the year. But these are just our first steps on the path of independence. Let the days, when the age-old dream of our people is destined to come true, be blessed. Our national values are being revived, respect for the names of our great thinkers and scientists, who raised the prestige of our science to the world level, is being restored.

The holiday of independence will be combined with other festivities, which will be widely celebrated among scientists, the intelligentsia, and all our people. We are to celebrate widely the 80th anniversary of the birth of the prominent scientist Khabib Mukhamedovich Abdullayev. The celebration of the 50th anniversary of the Academy of Sciences of Uzbekistan is also planned. We are carrying out much preparation for these noteworthy dates. And our duty is not to forget during the hard times our originality and to remember the great people who won fame for the Uzbek people.

Frolov on Malaise of Russian Science Establishment

937A0022A Moscow DELOVOY MIR in Russian
24 Sep 92 p 6

[Article by Prof. Nikolay Frolov under the rubric "Science": "Science on the Market of Morality"]

[Text] Are scientists prepared to accomplish the tasks facing the country?

Scientific and technical progress (NTP) is the basis for socioeconomic development. We learned this by rote, it seems, starting in kindergarten. Michael Rothschild in the article "How Capitalism Works" says the same thing, but in different words: "Knowledge stimulates the increase of the real standard of living by reducing the real production cost." Not often did our opinions coincide. But here it is clear to everyone: The level of economic development of the country depends on scientific and technical progress, while the former determines the standard of living of the population. However, no one for the present knows how to measure either one reliably. Therefore, it is impossible to refrain from the temptation to state: Here, too, we are ahead of the entire planet. *Bolshaya sovetskaya entsiklopediya* (The Great Soviet Encyclopedia) with the usual tedium for us states: Scientific and technical progress is "the unified, inter-conditional, progressive development of science and technology." The compilers of the encyclopedia assure that scientific and technical progress under the conditions of capitalism is accomplished "mainly in the interests of the ruling class," while under socialism it is accomplished "in the interests of all the people." The standard of living under capitalism expresses the relations of exploitation, while under socialism it expresses "the relations of collective cooperation for the purposes of the more complete meeting of the material and cultural needs of the people."

The majority of us, unfortunately, have begun to understand only now how these needs of the people were met. It turned out that in the per capita gross domestic product our country at the beginning of perestroika in 1985 was in 68th place in the world, while in per capita personal consumption it was in 77th place. Although now we remember that time as an era of abundance and prosperity.

Considerable attention was devoted in our country to the problems of scientific and technical progress. One of the largest conferences in this regard was held just two years ago. N. Slyunkov, a member of the Politburo of the CPSU Central Committee of that time, summarized its results in the report "New Approaches to Scientific and Technical Policy." At the very beginning of the report he asserted that "for the present one cannot talk about appreciable changes in the acceleration of scientific and technical progress, the scientific potential available in the country is not fully prepared to accomplish the tasks facing the country."

On what was this distressing conclusion for domestic science based? In the report, as is often usual, no definitions are given of the terms "scientific and technical progress" and "the scientific potential." But it is stated that we are approaching the United States in the number of personnel employed in science and "are seriously inferior in the quality of the scientific potential, its structure, technical equipment." This, obviously, should also give an idea of what is actually meant. It is also no particular trouble to perceive the main idea of the speaker: The state is investing much in science, but is receiving little. And therefore the scientific potential is to blame for our troubles. Inasmuch as N. Slyunkov is far from the only supporter of this point of view, to leave such statements unanswered implies the shifting of the blame onto someone else. I do not want at all, however, to claim that in domestic science all is well. By no means. I myself wrote about the major shortcomings, in particular, in *VESTNIK AKADEMII NAUK SSSR* (No 6, 1989) and *DELOVOY MIR* (16 October 1991). The above-cited statement is simply an incorrect diagnosis when prescribing treatment in "the new approach to scientific and technical policy."

Let us try to examine things objectively: Is the domestic scientific potential that much to blame for the fact that the shelves of stores are empty? The main difficulty in this direction consists in the fact that thus far there is no complete clarity: What is the scientific potential? If what is meant is only the number of personnel employed in science, as well as "the quality of the scientific potential, its structure and technical equipment," this is incomplete and insufficiently specific. True, scientists of science have advanced not much farther. Believing that the scientific potential is a measure of the possibilities of a given society in scientific knowledge and the use of the laws of nature and social development, they consider that for practical purposes it is impossible to determine the magnitude of the scientific potential and it is of a comparative nature. The set of parameters "on input" into the system "Science" (in addition to the number of personnel, as a rule, also the allocations), as well as "at the output" (usually the number of publications and the frequency of citation) is used in case of a comparison as the components of the scientific potential. But since not every publication contains new knowledge, while a reference is not always an indication of the actual significance of a publication, "at the output" new knowledge, which in practice takes the form of a scientific discovery or invention, which is the basis for an innovation and, consequently, scientific and technical progress, ought to be a more objective indicator. How do we look according to these parameters in comparison with the developed countries of the world?

Let us turn to the facts. "On input," in addition to approximate equality in the number of people employed in science, we are also not inferior to the United States in the spending on science as a percentage ratio of the national income. However, we lag significantly in absolute spending (in 1987, 31 billion rubles and \$125

billion) and, what is far more important, in the remuneration of the labor of scientists. In the United States of the total allocations approximately half is spent on wages, while in our country about one-tenth is. People are already tired of reading and hearing about the starvation wage of our scientists and "the brain drain" in connection with this. In the United States, for example, the title of professor guarantees \$50,000 a year of nontaxable income. What about in our country? The pay of scientists in developed countries on the average is fourfold higher than in the former USSR, while in individual ones of them it is ten- to fifteenfold higher (France). We strive in everything to compensate with the number. But in science extensive methods are particularly ineffective. In the earth sciences, for example, during the period from 1951 to 1966 just as many scientific discoveries (officially registered) were made as during the period from 1967 to 1982, although the number of scientific personnel during this time increased by fivefold (!).

What do we have "at the output"? In the number of published scientific articles the United States holds first place in the world, while we are at the end of the first five. In citation the United States is also in first place, while we are not in the first 10. According to the data of foreign researchers, the share of publications of the former USSR in the world information flow comes to 7.3 percent, while the share of references comes to 1.6 percent (for physics 11.3 and 3.5 percent respectively). It would seem to be correct: We received as much as we invested. But we will not hurry with final conclusions. To the flaws of the last two parameters (the number of publications and references), which have already been spoke about, one should also add the fact that when calculating the citation index not all our journals (1,335 American and 132 Soviet) are taken into account. Consequently, for this reason as well it is necessary to use different, more objective indicators, and the main one of them is new knowledge—the basis of innovation and, consequently, scientific and technical progress.

In our country on the average 14-16 scientific discoveries are registered annually. In capitalist countries scientific discoveries are not registered separately (I have already had occasion to write about the merits and drawbacks of the legal status of scientific discoveries in VESTNIK AKADEMII NAUK SSSR, No 7, 1991). It is also possible to judge approximately the level of basic research from the number of awarded Nobel Prizes. If you consider the system of the selection of candidates for the most prestigious prize for Soviet scientists to be fair, we are inferior to the United States in the proportion of 1/16. In the number of winners of the Nobel Prize the United States holds first place in the world, while we hold seventh place (after the United States, Great Britain, the FRG, France, Sweden, and Switzerland).

It is possible to judge the output with characteristics of innovation in the area of applied research from the number of submitted applications for inventions and protective documents issued in accordance with them per 100,000 people. And in this we have confidently

passed the United States, holding fifth place both in the number of applications and in the number of protective documents (after Germany, Japan, Switzerland, and Czechoslovakia). While the United States with respect to these indicators holds respectively 15th and 10th place. True, the United States in this case holds leading places in the number of protective documents purchased abroad, including in our country. The fact that the United States, Great Britain, the FRG, and France hold the first four places in the number of Nobel Prize winners and in exactly the same order the first four places in the number of protective documents for Soviet inventions, which were purchased in 1952, is, of course, a coincidence. But, undoubtedly, it is no mere chance that all these countries are also among the countries with the highest level of development and standard of living of their population. All this may be a consequence of a well thought out science policy, which is aimed at the priority development of their own basic research and at the purchase of protective documents for the results of applied research—inventions—in other countries. They earmark up to 13 percent of all the expenditures on science for basic research, while we earmark nearly half as much (about 7 percent).

At any rate, if you judge "the quality of the scientific potential" of a country as new knowledge, we, apparently, are not that catastrophically inferior to the United States in the area of basic research and, however strange this is, significantly surpass it in the area of applied science, if you regard as its result one's own (and not purchased) inventions. And this is in spite of the fact that Stalin repeatedly "mowed down" domestic inventors, about which I have also already had occasion to write in the press. This conclusion will probably seem unexpected to some people. Let us therefore turn to the opinion of a columnist of the newspaper THE WASHINGTON POST, whom I have already had occasion to quote: "Behind the seeming dilapidated facade of Soviet technology and industrial capabilities, to which the streets of Soviet cities and the shelves of stores testify, lies a powerful scientific infrastructure.... **The Soviet Union has a well-developed scientific potential** (emphasized by me—N.F.) and a splendid scientific educational base." Compare this with what the member of the Politburo, even if a former one, said. Is it strange? But this is not that strange. Indeed, if you admit that although the scientific potential of our country is not that very great, it is entirely comparable to the scientific potential of the most advanced countries, then it is necessary to seek other causes for our lag in the standard of living. But this leads not at all to the desired address. If we compare the places which are held by the countries with the most different systems of social organization with respect to the scientific potential, on the one hand, and the standard of living, on the other, it turns out with all obviousness that the so-called capitalist countries hold approximately the identical places in the world hierarchy with respect to these parameters (with allowance made for corrections for small countries, such as Kuwait, the United Arab Emirates, and Hong Kong,

which are distinguished by a high standard of living of the population, but do not have their own corresponding scientific potential). But then all the former socialist countries, which were among the first 20 countries of the world in the spending on science and the volume of scientific output with the characteristics of innovation, are not even among the first 40 countries (excluding the former GDR) in the per capita gross product and personal consumption of their long-suffering population. Our country, which by the efforts of scientists with their starvation wage, who were hacked by administrators, gives the world annually 14-16 officially registered scientific discoveries and 15 percent of all the inventions; which holds seventh place in the world in the number of Nobel Prize winners and second place in the spending on science; which is according to these indicators among the most developed countries, is for all this among the developing countries in the per capita gross product and personal consumption.

So is the domestic scientific potential guilty of the fact that "the tasks facing the country," which are connected with the increase of the standard of living of its people, are not being fulfilled? The same WASHINGTON POST, for example, regards as mistaken the tendency to draw conclusions about the lack of scientific achievements of countries which found themselves in a difficult economic situation. A great scientific potential, as a scientometric analysis shows, always guarantees a high standard of living for the population of the country, but not in countries with our system of social organization. Our system is incapable of ensuring the efficient use of what the country has.

During the seven years of perestroika hardly anything changed in science. If you do not consider the mass departure of the best people abroad and to the benches of pensioners. The same principle: "I am the chief—you are a fool," which suppresses all initiative and any innovation, dominates. The system, just as before, is rejecting the intellectually independent individual and is cultivating conformism. Scientific research institutes for this reason are crammed with impotent men from science. There are as many cases as you wish. Here is just one, which I personally know.

The State Committee for Inventions and Discoveries and the former USSR Ministry of Geology addressed to the All-Union Scientific Research Institute of Hydrogeology and Engineering Geology the recommendation to continue theoretical research in order to extend the area of the practical use of the results of a scientific discovery, for which the institute and the author were given a certificate and diploma. The first ones in the half-century history of the institute. And so what? After long delays and intrigues with reviewers the board of directors successfully killed the program. The reasons? By all means: "The development of a theory is impossible." That is how in practice the granting of greater independence to enterprises turns out in science.

But what if, perhaps, a prominent scientist, who sees farther and deeper, heads the scientific research institute? Like any mediocrity, he, G. Vartanyan, is interested not in science, but in how he himself looks in it. For this a flag is needed. As such a flag-cover he chose an actually urgent and important problem—the prediction of earthquakes—trying for more than 10 years to receive for this a diploma for a discovery. There is no diploma, just as there are no appreciable results, but then not just 100,000 rubles of the meager appropriations, which are allotted the institute for science, have been spent. Where are scientists looking? They looked at the root immediately, during the first discussions. But their attempts to get to the bottom of things in essence came up against deception. It was stated that the discovery was based on a coefficient, about which the authors could not speak because of its secrecy. And although soon it became clear that this was a lie, the "Vartanyan-Kulikov Effect" was entered with unprecedented haste in the register of discoveries. True, protests prevented the receipt of a diploma, but did not prevent exploitation of the fact of registration. And Vartanyan owing to this even became an academician and founder of the notorious Academy of Natural Sciences.

And is it now worth being amazed that not the collapsing institute, which was regarded in the recent past as one of the strongest in the country, worries the self-styled academician? Everything is concentrated on endless foreign business trips, intrigues with a second apartment from the fund of the institute, an excessive appetite for the estimation of his own wage....

As long as the fortunes of science and the scientific potential depend if only somehow on Vartanyans, who at one time took chairs owing to membership in the "guiding and directing one," until then the standard of living of the bulk of the population of our country will not rise above the poverty level.

'Nauka' Publishers To Merge With Western Company

937A0018A Moscow RADIKAL in Russian No 35 (92),
Sep 92 p 10

[Interview with Alexander Shustorovich, president of the Pleiades Publishing Corporation, by Vladimir Pokrovskiy, under the rubric "Returning to What Was Published"; place and date not given: "We Will Establish a Powerful Publishing Company for the Entire Country"—first three paragraphs are RADIKAL introduction]

[Text] An agreement between the presidium of the RAS [Russian Academy of Sciences] and the American Pleiades corporation, as a result of which the Nauka Publishing House will cease its existence and will give way to a limited liability company by the name of the Nauka International Academic Publishing Company (MAIK), will be signed in the next few days. So claims Alexander Shustorovich, president of Pleiades.

We have already told about this idea (see Nos 29 and 31), moreover, from a critical point of view. We will not repeat the arguments, let us just recall that a large number of scientific journals look at the coming authority of Pleiades with much panic, while seven of them, the most active and well-known ones, managed to get for themselves a "letter of enfranchisement." We have already said that the situation seems very, very ambiguous to us, there are many "pros" and "cons" here. Therefore, when the firm being criticized turned to us for satisfaction, we gladly responded in order to hear the other side.

Well, first, they showed us the products of Interperiodika (this is a joint venture based on Pleiades and the presidium of the RAS, which was established two years ago)—they are impressive. There is no comparison with the quality of what was published earlier by other firms—what are meant are eight English-language versions of academic journals, which are published by Interperiodika. The printing is simply excellent, it forced us to recall the notorious PENTHOUSE, which is published by the main partner of Pleiades—the GMI Corporation. But the main thing is what, indeed, our scientific periodicals did not dream about and due to which our journals lost 90 percent of their topicality. This is the simultaneous appearance of the Russian and English versions of journals.

[Shustorovich] Simultaneity is our principle, says Alexander Shustorovich.

This distinguishes us very advantageously from other firms which translate Russian scientific journals. Today a delay of six months is considered the norm, but there are also a little more significant delays. Pergamon Press, for example, had a lag of a year and a half. While publishers like Gordon lagged more than three years....

We have also changed radically the system of translation. Previously there were many errors due to the fact that translators often did not understand well the field of science, which was discussed in their translation. We have a most extensive staff of skilled translators, and we are able to give the translation to the one who is professionally familiar with the theme of the article.

In general, the very approach to publication has been changed. If we put in briefly, our policy is that we rid the editorial offices of the headache of organizing the process of work with the printing plant, Rospechat, and so on. In short, we are dealing with an entire set of problems, at times simply everyday ones, with which hardly anyone in Russia is dealing properly.

Before us for decades the royalties for authors practically did not change—we increased them by 30-50 percent. In addition to this we are giving scientific workers additional work (translation is meant), which is connected with their basic activity and enables them to live under the present difficult conditions, without spending time on "odd jobs." In general, one of the principles of our

activity is to offer our partners more favorable conditions than the ones which they can obtain in another place. We offer good conditions to authors, to the members of the editorial office, and to the members of the editorial board. We give members of the editorial board the opportunity to go to the international conferences, to which given the present situation it would be difficult for them to go.

In addition to good conditions we also offer good treatment. We always meet people halfway, we easily advance money against guarantees, we can help scientific associates both with rubles and with other forms of aid. Here we have unique opportunities as compared with other western organizations, because we are located in Russia and know what is needed.

But the journals which we publish are, in reality, new journals. They perceive them precisely this way in the West. I can cite more than one example, when in the West they begin to be delighted with our product and say: "Oh, what a good journal you have begun to publish!" But this journal had already been published for more than a decade, but was worse in quality and no one at all needed it, because it appeared with too great a delay.

Our journals are beginning to be read by scientists who earlier had not taken them in their hands. The good printing quality, the timeliness of the appearance of the English version, the good conditions—all this is attracting new authors to us. Actually our journals are beginning to "draw off" articles from the journals which for the present are not connected with us.

For the present we are publishing eight titles, but this is just the beginning. Next year their number will increase substantially.

[Pokrovskiy] Permit me to elaborate a little, otherwise it is rather easy to become confused. If I correctly understand the genealogy of our firm, at first there was GMI, which, having merged with Allen Press, established the Pleiades Publishing Corporation, which is intended for work on the Russian market. Then Pleiades together with the presidium of the RAS established the Interperiodika Joint Venture. Now you also represent it. Do I understand correctly?

[Shustorovich] For the most part you do.

[Pokrovskiy] Then there is the following question. Now the presidium of the RAS jointly with the same Pleiades Corporation is establishing a limited liability company—the Nauka MAIK. Then what does Interperiodika have to do with it? Although you and the MAIK are twin brothers, legally you are all the same completely different subjects.

[Shustorovich] According to the present agreement the academy wants to merge Interperiodika with the structure of the Nauka MAIK. Moreover, this merger will take place gradually, over approximately five years. The

strategy is as follows—first the new company, the Nauka MAIK, will be formed. Then, depending on circumstances, as feasible this company will increase its potential by merging with it the structures of Interperiodika and the old Nauka Publishing House. Actually Interperiodika will become a part of the Nauka MAIK. It will become a part of Nauka with the package of journals, with which at one time it signed contracts. Now this is more than 40 journals.

[Pokrovskiy] And here is another thing that is unclear. The Nauka Publishing House is on the verge of bankruptcy....

[Shustorovich] Is beyond the verge, would be more precise.

[Pokrovskiy] Its finances and production base are in deplorable condition. And suddenly there comes along a western firm which agrees on the basis of this "wealth" to establish a new company, moreover, the controlling interest will belong not to this firm, but to the presidium of the RAS. What is your interest? How do you intend to make money on this?

[Shustorovich] If I were interested only in today, I would not, of course, have agreed to such a business, but would have begun to peddle bananas on the street. I believe fundamentally in the future of Russia, I believe fundamentally in the future of the Russian Academy of Sciences. I do not doubt that the traditions of the scientific potential of your country will survive all the stresses, which are shaking you today and will shake you tomorrow. This is the opinion of everyone who is investing money in Pleiades.

In fact we are buying not journals, but "reputations." It is possible to make a journal in a month—its reputation is created over decades. The work of a large number of different editorial offices and different authors is incorporated in the reputation, the potential of the Academy of Sciences, which was accumulated over centuries, is incorporated in it. When wishing to have their work published in one journal or another, authors first of all direct attention to its reputation, to what weight the word of this journal has for the world scientific community.

We cannot create reputations in a short time, but we can improve them. We can make our publications attractive for foreign authors and, as is customary in the West, can propose on the market our own terms for each of the journals. Some of them not only will not pay royalties to foreign authors, but probably will also even collect from them a certain fee for publication. This, of course, will not concern Russian authors, inasmuch as they earn much less than their western colleagues.

We are a commercial enterprise and, of course, will work with the aim of making a profit. In the world there will be few scientific journals which receive financial support from the state: Of the total number of about 100,000 journals, which exist today, there will be scarcely several

thousand. We realize perfectly well that not all of the Russian journals that exist today will be able to survive the crisis. And in general I do not believe that in Russia today there is a sufficient amount of science to fill the 576 scientific journals which exist in Russia. But even the ones that will survive will probably not yield us a profit for the time being—the academy, and we believe that this is correct, has established very low prices for them. Now the average price for a journal is such that it costs in the literal sense of the word less than a piece of bread. We are agreeing to this, because we have other means of deriving a profit.

We hope that together with the presidium of the RAS we will be able to establish a powerful publishing company for work for the entire country. We intend to publish journals of the Academy of Sciences, other Russian scientific departments, as well as other countries—international journals, books, works of conferences, and so on. Inasmuch as the cost of such a product in the West is very high, while here it is much less, this will bring us real money—and a considerable amount of it. In addition to this we intend to publish popular journals—we are already now beginning to receive similar offers from western firms.

Of course, all this is nothing more than assumptions. Much depends on what direction Russian legislation will develop in. Today it is extremely inadequate. For the present things that are self-evident for any western country—for example, what concerns property rights—are not evident in Russia. But, I believe, with time the legal aspect of the matter will also be settled. We have the possibility of long-term financing and seriously expect in the end to come out ahead.

Cosmonaut Comments on Support of Ex-Soviet Electronics Industry

937A0011A Moscow POISK in Russian No 36 (174),
29 Aug-4 Sep 92 p 3

[Interview with Doctor of Technical Sciences Aleksey Yeliseyev, twice Hero of Socialist Labor and a pilot-cosmonaut, by Vladimir Shlemin, under the rubric "One Hundred Computer Problems"; date and place not given: "Call the Resuscitators!"—first five paragraphs are POISK introduction]

[Text] One of our regular readers—the president of a software firm from the United States—once asked the editorial office to publish more reports on high-tech enterprises of the electronics industry of the former USSR. And for a long time I could not believe that today it is very difficult to fulfill his request. We do not have what is called throughout the world "advanced electronics." And, hence, an industry which is capable of developing it.

But what about space? Defense? you will ask.

Indeed, what about them?

We decided to talk on this theme with a man who for long years by type of service was involved with the technical and engineering support of these sectors of science and industry. The subject of our interview is Doctor of Technical Sciences Aleksey Yeliseyev, twice Hero of Socialist Labor and a pilot-cosmonaut.

The first question: If our electronics is so poor, how did you fly with it?

[Yeliseyev] The point is that we, it can be said, flew not at all with what was considered domestic electronics.

The process of manufacturing onboard equipment took a lot of effort and time. It is comparable in complexity almost to the development of the craft itself. And how could it have been otherwise? For it was well known to us that the equipment, which came via distribution—that is, in the general flow—did not stand up to criticism. If among the machines received directly from the plant if only half worked, this was considered a good lot of equipment.

That is why we took a different route: Everything went through special selection. We began with the element base. Of 1,000 components a handful remained! And then, again through special checking, we proceeded to assembly. Then the finished item went through military (!) acceptance.

But such a sieve of quality also did not give special guarantees. That is why redundancy was the next step. That is, instead of one we installed three or four electronic circuits. And we forced them during the transmission of information to "vote," during operation we chose the data which we obtained from the majority of devices. Perhaps, this was not the best route from an engineering standpoint, but it gave us a chance: for survival. And this was important!

Incidentally, the same thing was also done for the Mission Control Center. There computers with a considerable margin were also installed. A margin that exceeds at times the margin which is necessary for the prevention of emergency situations.

[Shlemin] Does it turn out that all the talk about "secret superelectronics," which outdistances the entire world, is just talk?

[Yeliseyev] Well, if you wish, a myth. For it was impossible to introduce military acceptance at a series-producing plant. And actually not the best equipment in the world was delivered to users who were not noted by affiliation with such priority programs as space or strategic defense. The distribution system came to the rescue: If they allotted the user a machine, he took it. For he knew that there is no choice, neither better nor worse is expected.

While isolationist policy operated, everything was fine. But we went into the open trade space, and large and small machines of well-known firms poured into the country in a broad stream.... Then and there it turned

out that in our country things with the priorities in electronics were bad. In spite of the fact that we tried both to copy foreign machines and to seek our own solutions.... According to the most loyal calculations our lag behind the developed world came in the electronics industry to one to two generations. This is with respect to electronic components, while with respect to their quality there is nothing to say.... For example, IBM allows one reject per 10,000 finished computers. But then our machines were able to compete costwise with the most advanced foreign models.

Incidentally, manufacturers to this day are consoling themselves and clients with declarations about the world level achieved by them. But we do not even have descriptions of the requirements of international standards, the fulfillment of which also signifies work at the world level. During the search for partners on our territory the foreign specialists of one major computer firm were unable to find a single component of electronics, which was manufactured in accordance with such standards.

Thus Soviet electronics quietly "died" in disrepute.

[Shlemin] What do you mean?

[Yeliseyev] Not that long ago I had occasion to visit a number of our enterprises of the electronics industry. It is, I will tell you, a sad sight.

Zelenograd. What we considered the center of our electronics industry. The plant, which produced personal computers, seems dead: They have sent the majority of personnel on unpaid leaves.

The Voronezh Elektronika Association. Here they are still working.... Two weeks a month each.

Things are no better, incidentally, in now sovereign Byelarus and Ukraine. The assembly shops of plants are empty. While there are unclaimed products in abundance.

[Shlemin] What can, in your opinion, change the situation for the better?

[Yeliseyev] There is no clear answer here. However, if we have ventured to pick ourselves out of self-isolation, will be try, perhaps, to look at the situation from the standpoint of world experience?

We always listed with satisfaction "developing and underdeveloped countries": Hong Kong, Taiwan, Singapore.... And now? Now we are buying computers from them. Although at times they are lower in quality than American or Japanese computers. But they are better than ours!

But how did these countries achieve their present status? Why, they simply learned to work. That is, they undertook assembly and the production of components and semimanufactures, which they gladly entrusted to them, taking into account the cheapness of their manpower.

Meanwhile they slowly bought up technologies and equipment. They sought and trained specialists. And they began to open their own computer enterprises.

No one is capable of beginning all at once to live in a new way. The equipment and technologies, which make it possible to begin the production of advanced machines, cost billions of dollars. We do not have them. But then we have plenty of vacant space, where it is possible to develop if only the technologically simplest production. We have talented engineers and designers. There are capable and fairly skilled workers. Why should we not take the path of the "Pacific tigers"? The entire world today has recognized the advantages of cooperation. Even in such an area of electronics, where competition and rivalry are extremely intense. What is preventing us from taking this path? I think that people who wish to work with us will be found. It is important not to let the moment pass! While with time we will, I am certain, catch up.

'POISK' Science News Briefs 29 August 1992

937A0011B Moscow POISK in Russian No 36 (174),
29 Aug-4 Sep 92 p 2

[Article]

[Text] Splitters From Cybernetics

Judging from recent events at the Institute of Cybernetics of the Academy of Sciences of Ukraine, the process of the disintegration of "the flagships of science" has "started." One of the most powerful research complexes in the former Union, it appears, will be divided into at least six independent institutes. The administration of the Institute of Cybernetics is incapable of preventing this centrifugal process. True, many scientists believe that it is possible to save its collective of 4,000 only by breaking up the giant.

The Special Design Bureau of Mathematical Machines and Systems, which was transformed into a cost accounting institute, was the first splitter.

Figure

They have increased the wage of university professors in the Republic of Sakha (Yakutia) to 26,000 rubles.

Fact

During the last days of August the printing plant of the Nauka Association once again halted the publication of

scientific literature. The publishing house does not have money for paper. The president of the RAS has promised to help.

- **President of the RAS [Russian Academy of Sciences] Yu. Osipov issued a directive to the subdivisions of the academy to begin the implementation of the decree of the government "On Measures on the Support and Development of the RAS."**

One of the provisions of the document, which was signed by Yu. Osipov, states: The regional departments, scientific centers, institutes, and institutions of the RAS within a six-month period are to carry out the drawing up of documents on the right of the indefinite (permanent) use of the parcels of land, which were made available to them earlier.

- **In the Ministry of Science, the Higher School, and Technical Policy the possibilities of establishing on the basis of the Institute of Physiology of the RAS in the settlement of Koltusha near St. Petersburg the International Science Center imeni I. Pavlov are being examined.**

Recently President of the RAS Yu. Osipov addressed to B. Yeltsin the request to support this project. In the letter of Yu. Osipov it is stressed that the organization of the center will make it possible to intensify the scientific cooperation of physiologists of different countries, as well as will create possibilities for the attraction of foreign scientists and additional sources of financing for development in the area of physiology in Russia.

For the implementation of the project 60 million rubles and \$100,000 will be required.

- **On 9 September the Constituent Plenum of the Commission of the RAS for Preserve Affairs is beginning work at the tourist complex of the Zhigulevsk Preserve.** At the plenum the prospects of uniting specialists in preserve affairs and the problems of the preservation of ecosystems and the species diversity at preserves will be discussed. Participation in international programs will also be spoken about.
The Nauka Association, of which Corresponding Member of the RAS and Academician of the International Engineering Academy G. Krestov became chairman, was established in Ivanovo.

The tasks of the association are: the integration of academic, VUZ, and sectorial science within the Ivanovo Science Center and, in the future, the establishment of ties with other centers of science of the Upper Volga Region.

The association will also engage in the organization of scientific educational and scientific production complexes and in the development of advanced technologies.

Conference on Acquiring Foreign Funds for Russian Science

937A0019A Moscow *RADIKAL* in Russian No 36 (93), Sep 92 p 9

[Article by V.P.: "Moscow and Its Science"]

[Text] Another opportunity—we will not use the alarmist "to save"—to improve the state of affairs in Russian science has appeared. Moscow, where, as is known, an overwhelming share of Russian scientific institutions is concentrated, for the first time has displayed an active interest in this sphere and has begun to undertake actions which are worthy of all sorts of praise.

The Integration Conference of Scientists and Entrepreneurs of Moscow and Moscow Oblast will be held on 16 and 17 October. Last Friday a seminar on its preparation took place in the building of the Moscow City Soviet.

The main problem, which the conference will examine, is how to help scientists of the capital to survive under present conditions and how to organize contact between scientists and entrepreneurs—domestic and foreign—who could finance Moscow research. And the main thing is to understand what it is necessary to do for this and what structures and what mechanisms it is necessary to develop.

The seminar showed that the scientific community of Moscow is linking great hopes with this conference. It brought together not only VIPs and scientific administrators, but also the people who last year organized the conference of scientists of the Russian Academy of

Sciences. On the threshold of the coming major reduction of personnel and, what in this case is even more important, the approach of the date of the rent payment, which today already exceeds by threefold the budget of the average Moscow institute (14,500 rubles per square meter), the contact of scientists with capital authorities is acquiring a special, vitally important meaning. "If you consider that bad Moscow demands inordinate rent," said Eduard Mirskiy, one of the members of the organizing committee, "while good Russia should repeal this, the talks with any partner will come to an impasse—everyone knows how to be good at the expense of someone else." Moscow, it was said, can agree not to receive this money, and this will signify its contribution to science, which is threefold more than the state budget. In such a situation the transfer to Moscow of the controlling package of scientific shares from the state and the Academy of Sciences would be natural.

The lease is one of the important, but particular Moscow scientific problems, of which there are a large number and an approach to which they will seek at the conference. The Integration Conference, as was repeatedly stressed by the seminar participants, is only a starting push, just the beginning of the process, which it is still unclear how it will go and into what it will develop, but which all Moscow science objectively needs. The members of the conference organizing committee are counting on the most active participation in it of Moscow scientists—this will increase the chances for success of this undertaking. They await your calls.

Telephone number of the organizing committee: 290-71-25.

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